

COURSE OUTLINE

Revision: Carol Koepke Date: January, 2009

DEPARTMENT: Technical Education
CURRICULUM: Computing Technology
COURSE TITLE: Databases I, Network Administration
COURSE NUMBER: CTN 120
TYPE OF COURSE: Vocational Preparatory
COURSE LENGTH: 1 Quarter
CREDIT HOURS: 5
LECTURE HOURS: 55
LAB HOURS: 0
CLASS SIZE: 24
PREREQUISITES: CSC 100 (Beginning Computers) or equivalent

COURSE DESCRIPTION:

An overview of database concepts and applications. Emphasis on MS-Access and its role in the Microsoft Office. Includes practical hands-on experience setting up related database systems, and on developing tables, queries, form and reports.

STUDENT LEARNING OUTCOMES ADDRESSED:

1. Computation - Use arithmetic and other basic mathematical operations as required by program of study.
2. Human Relations - Use social interactive skills to work in groups effectively.
3. Technology - Select and use appropriate technological tools for personal, academic and career tasks.
4. Personal Responsibility - Be motivated and able to continue learning and adapt to change. Value one's own skills, abilities, ideas and art, and take pride in one's own work.

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STUDENT LEARNING OUTCOMES ADDRESSED (Cont'd)

5. Information Literacy - Access and evaluate information from a variety of sources and contexts, including technology. Use information to achieve personal, academic and career goals, as well as to participate in a democratic society.

PROGRAM OUTCOMES ADDRESSED:

- 1d Introduction to using software applications for utilitarian or presentation purposes.
- 3a Select, implement appropriate troubleshooting tools and methods for problem solving.
- 4a Use critical thinking for analysis of hardware, OS, or network problems.
- 4b Access information efficiently and accurately to resolve computer problems.
- 4c Work effectively with others to accomplish complex tasks.

GENERAL COURSE OBJECTIVES:

At the end of the course the student will:

1. To provide familiarity with concepts and terminology that apply to all database management systems.
2. To develop the skills needed to analyze applications of database management systems.
3. To provide practical hands-on experience with MS-Access.
4. To provide experience with multi-table relational databases.
5. To develop an appreciation for the power of data managed through database management systems.
6. Start and exit MS-Access
7. Open an existing database
8. Identify components of the Access and Database windows
9. Open, navigate, and print a table
10. Create, run, and print a query
11. Create, and print a form
12. Use the Access Help system
13. Create, preview and print a report
14. Discuss database and table design considerations
15. Create and save a table
16. Define fields and specify a table's primary key
17. Add records to a table
18. Modify the structure of a table
19. Discuss data types available in Access and make appropriate selection decisions

GENERAL COURSE OBJECTIVES (Cont'd)

20. Set and change field properties
21. Copy records from another Access database
22. Edit and delete records
23. Use Access's QBE window to design queries
24. Define relationships between tables
25. Sort data in a query
26. Filter data in a query
27. Specify an exact match condition in a query
28. Use comparison operators to specify ranges for matching conditions in a query
29. Use And and Or logical operators to specify complex matching conditions in a query
30. Create calculated fields in a query
31. Use aggregate functions and record group calculations in a query
32. Modify the appearance of a datasheet output from a query
33. Create forms using Access's Form Wizard
34. Change a form's Autoformat
35. Navigate a form and find data using a form
36. Maintain table data using a form
37. Create a form with a main form and an embedded subform
38. Create a report using the Report Wizard
39. Preview and print a report
40. Insert a picture into a report
41. Discuss the impact of decisions regarding linking or embedding pictures into databases
42. Compact a database and understand the value and purpose of this action
43. Create a Lookup Wizard field in a table
44. Define multiple selection criteria in a query
45. Use the In, Like, and Not operators in a query
46. Use both the And and Or operators in the same query
47. Create a parameter query
48. Design and create a custom form
49. Select, move, and delete controls
50. Add form headers and footers
51. Add graphic images to a form
52. Use the Control Wizard to create multi-page forms
53. Use a filter to select and sort records in a form
54. Design and create a custom report
55. Modify report controls and properties
56. Sort and group data
57. Calculate group and overall totals
58. Hide duplicate values on a report
59. Embed and link objects in a report
60. Export Access data to other programs

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GENERAL COURSE OBJECTIVES (Cont.):

61. Discuss one-to-one, one-to-many, and many-to-many relationships between tables
62. Discuss and implement referential integrity in a relationship
63. Discuss and implement cascading updates and deletes
64. Discuss inner and outer joins between tables
65. Discuss the basic purposes and principles involved in data normalization

TOPICAL OUTLINE:

APPROX. HOURS

- | | |
|---|-----|
| I. Database management system concepts | |
| A. Formal structured design methods vs. prototyping | 2.0 |
| B. Data storage systems | 2.0 |
| 1. Main data tables (entities) | |
| a. Fields (attributes) | |
| b. Records (instances of an entity described by values on each attribute) | |
| c. Data (values) | |
| 2. Index tables | |
| 3. Bridge tables | |
| C. Database structures vs. data | 2.0 |
| 1. Data dictionary | |
| a. Definition of tables in terms of field | |
| b. Definition of fields in terms of properties | |
| c. Definition of relationships between tables in terms of key fields | |
| D. Data validation | 2.0 |
| 1. Rules that limit data entry | |
| 2. Opportunities for implementation | |
| E. Relationships between tables | 2.0 |
| 1. One-to-one (rare, but available) | |
| 2. One-to-many (the real power of relational databases) | |
| 3. Many-to-many (resolve into one-to-many) | |
| 4. Primary key/foreign key | |
| 5. Single field and multi-field keys | |
| F. Referential integrity | 2.0 |
| 1. Cascading updates and deletes | |

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TOPICAL OUTLINE (Cont.):

	APPROX HOURS
G. Data entry and extraction	2.0
1. Programs vs. data	
2. Input/output screens (forms and output reports)	
H. Data transfer between applications	2.0
1. Export/import	
2. Common formats	
I. Repairing and compacting databases	2.0
J. MS-Access concepts	2.0
1. Objects	
2. Inheritance of properties between objects	
3. Context sensitive help	
4. Wizards/builders	
II. MS-Access implementation methods	
A. Tables	16.0
1. Defining fields	
2. Selecting field types	
a. Text	
1) memo	
b. Numeric	
1) Date	
2) Yes/no	
3) Currency	
4) Counter	
c. OLE object	
3. Setting field properties	
a. Size	
1) Text	
2) Numerical	
a) Byte	
b) Integer	
c) Long integer	
d) Single	
e) Double	
b. Input mask	
c. Validation rule	
d. Default value	
e. Required value	
f. Index	
g. Managing indexes	
4. Establishing/managing relationships between tables	

TOPICAL OUTLINE (Cont'd):

	APPROX. HOURS
B. Data extraction	8.0
1. Sorting	
2. Finding	
3. Filtering (dynasets)	
4. Selection criteria	
5. Select queries	
a. QBE screen	
b. Criteria and grouping	
c. Expressions	
d. Calculated fields	
6. Action queries	
a. Up-date	
b. Archive/delete	
c. Append	
7. Structured query language (SQL)	
C. Forms/reports	11.0
1. Wizards	
2. Design view vs. data view	
3. Headers/body/footer	
4. Common controls	
a. Labels	
b. Text boxes	
c. Combo boxes	
d. List boxes	
5. Calculated controls	
6. Main and sub forms	
7. Form/report properties	
8. Control properties	
Total	<u>55.0</u>

Submitted By: Carol Koepke
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