Eastern Illinois University
Revised Course Proposal
MIS 4300, File Organization with COBOL

Agenda Item #06-50
Effective Fall 2007
Revised, Effective Fall 2016

1. Catalog description

a) Course number: MIS 4300
b) Title: File Organization with COBOL
c) Meeting times and credit: (3-0-3)
d) Terms to be offered: (F)
e) Short title – FileOrg-COBOL
f) Course description: A study of disk file structures, organization and file management methods. Advanced COBOL concepts are used in a file-processing environment. Emphasis on indexed file structures, and sequential, random, and dynamic access methods by both primary and alternate keys. Includes disk file organization, creation, storage, retrieval, maintenance and security, system integration testing, to include writing test plans, executing test cases and tracking defects.
g) Prerequisite**:** Junior standing, MIS 3300, or permission of the Associate Chair, School of Business.
h) Initial term of course offering: FA2007

2. Student Learning Objectives and Evaluation

A. Upon successful completion of this course, students will be able to:
   1) Apply knowledge of various file structures used in today's typical data processing environment
   2) Program different data structures and file organizations, including the creation and maintenance of sequential and VSAM files.
   3) Efficiently utilize table sorting and searching algorithms; distinguish between the SORT verb and sorting algorithms
   4) Utilize the COBOL programming language with expertise and elegance
   5) Maintain centralized mainframe data files, through the use of programming techniques and online dataset facilities
   6) Efficiently use indexed file structures and sequential, random and dynamic access methods
   7) Evaluate debugging techniques and apply appropriate measures
   8) Develop and execute test plans and test strategies; track defects
   9) Systematically test software effectively and efficiently

B. The students' achievement of the stated objectives will be assessed and grades will be earned on the basis of examinations, programming projects, in-lab exercises, homework assignments and quizzes.

	Exams (50%)	Homework jAssignments (30%)	Final Exam (20%)
Apply knowledge of various file structures used in today's typical data processing environment	X	X	X
Program different data structures and file organizations, including the creation and maintenance of sequential and VSAM files.	X	X	X
Efficiently utilize table sorting and searching algorithms; distinguish between the SORT verb and sorting algorithms	X	X	X
Utilize the COBOL programming language with expertise and elegance	X	X	X
Maintain centralized mainframe data files, through the use of programming techniques and online dataset facilities	X	X	X
Efficiently use indexed file structures; and sequential, random and dynamic access methods	X	X	X
Evaluate debugging techniques and apply appropriate measures	X	X	X
Develop and execute test plans and test strategies; track defects		X	X
Systematically test software effectively and efficiently		X	X

C. This is not a technology delivered class.
D. This class is not numbered 4750-4999.
E. This class is not writing active.

3. Outline of the Course

Weeks	Topic
1	Introduction to Course; Concepts of Sequential File Updating; Father/Son Processing and Updating in Place; Updating in Place; Rewrite Verb; Open I-O option; Audit Trail; File Backups
1	Updating in Place; Updating Records selected by Transaction File; Control Break Logic; Sorting/Selecting Valid Transactions; Sort Options: Using/Giving; Input Procedure/Output Procedure
1	Two Print Files: Error Listing and Audit Trail; Direct (Positional) Table Processing
1	Basic Father-Son Processing – Balance Line Algorithm Modification to the Balance Line Algorithm: Audit Trail and Control Totals Utilities to delete files, JCL to create files
1	Compression of Data: COMP, COMP-3 in data files
1	Variable Length Tables Bubble Sort/Insertion Sort
1.5	Passing External Parameters Subprograms – The calling program; the called program
1	VSAM concepts VSAM COBOL syntax and logic for random and sequential access (primary key)
1	VSAM COBOL syntax and logic for Adding/Changing/Deleting records (primary key) VSAM COBOL syntax and logic for adding/changing/deleting records (foreign key) VSAM cluster/repro/delete
2.5	Creation of the Alternate Index Sequential, random and dynamic access VSAM Import/Export/Listcat
2	Two Dimensional Tables Write test plans Execute test plans Stub, unit, verification, and validation testing Track defects
1	Exams

4. Rationale

a) Purpose and need: This course gives the students depth in additional programming skills. This course fulfills a two course sequence.

b) Justification of the level of the course and of course prerequisites: This course makes use of advanced techniques in file organization and testing methodologies. The addition of significantly more theory and practice with indexed file structures and the use of sequential, random and dynamic access methods along with the development and execution of test cases justify the change from the 3000 to the 4000.

c) Similarity to existing courses: This course will replace CIS3340 which will be deleted.

d) Impact on Program: This course is a required class for all Management Information Systems majors in the Business Programming concentration and is an elective in the minor.

5. Implementation

a) Faculty member(s) to whom the course may be assigned: Illia

b) Additional Cost to Students: Students will be expected to submit projects in hard copy (paper) format. Additional costs to students will be minimal.

c) Text and supplementary materials: Proposed Textbook: *COBOL From Micro to Mainframe* by Robert Grauer, Carol Vasquex Villar and Arthur Buss, Prentice Hall, 2000. *Vsam for the COBOL Programmer* by Doug Lowe, Prentice Hall, 1998. *Working Effectively with Legacy Code* by Michael Feathers, Prentice Hall, 2005.

6. Community College Transfer

a) A community college course may not be judged equivalent to this course.

7. Date approved by the department or school: 2/15/06

8. Date approved by the college curriculum committee 3/6/06

9. Date approved by CAA 4/20/06