

Sault College of Applied Arts and Technology sault ste. marie

Course Outline

SYSTEMS DESIGN & IMPLEMENTATION

EDP 203-6

revised JANUARY 1976
same for January 1979

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METHOD OF EVALUATION

During the course of this semester students are encouraged to use the materials available to research JCL and the techniques available to get a workable programme.

1. Research consists of being able to:

- (a) construct the necessary JCL to compile and execute
- (b) construct the necessary linkage
- (c) catalogue the procedures
- (d) construct the linkage in (i) a calling programme; (ii) a called programme
- (e) retrieve data sets in previously created data sets; in catalogued data sets; non catalogued data sets; passed data sets
- (f) create unit record data sets, mag. tape data sets, mass storage data sets, sequential data sets, direct data sets (BDAM), indexed data sets (BISAM & QISAM)
- (g) use the program checkout routines effectively and efficiently
- (h) use the report writer feature
- (i) interpret the compiler outputs

2. Programmes turned in will be evaluated using the following criteria:

1. number of out-house on line runs
2. quality of the research conducted
3. the efficiency of the techniques used
4. ability to incorporate previously learned techniques
5. the "workability" of the submission

3. Students will be required to submit programmes in all major areas of study. As the semester progresses, more and more past techniques are incorporated until the culmination of nearly all is necessary in a major project requiring approximately $3\frac{1}{2}$ - 4 weeks. This major project will be firstly analyzed on a PERT network, then modularized using the structured programming and SML techniques, then divided into individualized programmes, and finally culminated and executed in a group environment using a project leader as the turn key. Programmes will be necessary in these major areas:

- report writer
- indexed sequential files
- direct files
- sort
- called and calling programmes
- overlay techniques

Any programme not turned in will constitute an incomplete grade.

Grade assessment is as follows:

85 - 100	A
75 - 84	B
60 - 74	C
all below	I

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1. Sort Feature

- sort DD statements
- sort input DD statements
- sort output DD statements
- sort work DD statements
- sort work nn data sheet considerations
- input DD statement
- output DD statement
- sort work nn DD statement
- additional DD statement
- sharing devices between tape data sets
- using more than 1 SORT statement in a job
- sort program example
- cataloguing sort DD statements
- sort diagnostic messages
- linkage with the Sort/Merge
- completion codes
- locating sort record fields
- locating last record released to sort by an input procedure
- Sort/Merge checkpoint/Restart
- efficient program use
- data set size
- main storage requirements
- defining sort record descriptions

2. Creating and Retrieving IS data sets

3. Calling & Called Programs

- specifying linkage
- linkage in a calling cobol program
- linkage in a called cobol program
- correspondence of identifiers in calling and called programs
- linkage in a calling or called assembler language program
- conventions used in a calling assembler language program
- file name and procedure name arguments
- communication with other languages
- linkage editing programs
- specifying primary input
- specifying additional input
- include statement
- library statement
- linkage editor processing
- example of linkage ed processing
- overlay structures
- considerations for overlay
- linkage editing with preplanned overlay
- dynamic overlay techniques
- loading programs
- specifying primary input
- specifying additional input

4. Using the DD Statement

- creating a data set
- creating unit record data sets
- creating data sets on mag. tape
- creating sequential (BSAM) or (QSAM)
- data sets on mass storage devices
- creating direct (BDAM) data sets
- creating indexed (BISAM) and (QISAM) data sets
- creating data sets in the output stream
- examples of DD statements used to create data sets
- retrieving previously created data sets
- retrieving catalogued data sets
- retrieving non-catalogued data sets (KEEP)
- retrieving passed data sets
- extending data sets with additional output
- retrieving data thru' an input stream
- examples of DD statements used to retrieve data sets
- DD statements that specify unit record devices
- cataloguing a data set
- generation data groups
- naming data sets
- data control block
- over-riding DCB fields
- identifying DCB information
- system error recovery
- invalid key option
- use after error option
- volume labelling
- standard label format
- standard label processing
- standard user labels
- user label totaling
- nonstandard label format
- nonstandard label processing
- user label procedure

5. Record Formats

- fixed length (F) records
- unspecified (U) records
- variable length (V) records
- apply write only clause
- spanned (S) records
- sequential S mode files (QSAM) for tape or mass storage
- source language considerations processing sequential S-mode files (QSAM)
- directly organized S-mode files (BDAM and BSAM)
- processing directly organized S-mode files (BDAM and BSAM)
- occurs clause with the depending on option

6. Output

- compiler output
- object module
- linkage editor output
- comments on the module map and cross reference list
- linkage editor messages
- loader output
- Cobol load module execution output
- requests for output
- operator messages
- system output

7. Program Checkout

- debugging language
- following the flow of control
- displaying data values during execution
- testing a program selectively
- testing changes and additions to programs

8. Report Writer Feature

- summing technique
- use of sum
- sum routines
- output line overlay
- page breaks
- with code clause
- control footings and page format
- floating first detail rule
- report writer routines