



University Computer Center Newsletter

UNIVERSITY COMPUTER CENTER

UNIVERSITY OF MINNESOTA-TWIN CITIES

MINNEAPOLIS, MINNESOTA 55455

contents

CHANGE/6400/170-720/* MERITSS up and running, no problems	p. 74
NEW VERSION OF XEDIT Highlights of Xedit 3.1	p. 74
DATA BASE MANAGEMENT User group proposed, System 2000 notes	p. 75
VIDEO TAPE COPIES Costs you more	p. 75
FOR SALE	p. 75
USAGE STATISTICS	p. 76
SHORT COURSE DESCRIPTIONS	p. 77

bulletins

An additional "Introduction to UCC" class will be held on Tuesday, September 25th, 2:15-3:15 in Mechanical Engineering 108. This will be an abbreviated version of the October 5th class and is intended for users of the UNITE educational system, however, others are welcome to attend.

DON'T FORGET THE SYSTEM CHANGE

SEE WRITEUP, UPGRADE.

UCC newsletter

Volume 13 Number 9 September, 1979

Director: Peter C. Patton
Editor : Amy Koepke

Comments about the content of this newsletter, or suggestions for changes may be directed to the editor, 235a Experimental Engineering, 612/373-7744.

The University of Minnesota adheres to the principle that all persons shall have equal opportunity and access to facilities in any phase of University activity without regard to race, creed, color, sex, or national origin.

Copyright University of Minnesota, 1979. Permission to copy is hereby granted, provided that proper acknowledgement is given.

CHANGE/6400/170-720/

During the weekend of August 25-26 a CDC Cyber 170-720 replaced the MERITSS CDC 6400.

As noted in last month's newsletter, increased demand for computer time and for greater specialization forced the MERITSS upgrade. The need for more and for faster terminals also contributed to the 6400's demise.

We planned the change so you would notice only two effects: we would be down the weekend of the change, and response time would improve. At the time of this writing, the upgrade can only be viewed as a complete success. The change went so smoothly that the new system was brought up at 6:00 PM Sunday evening, only 40 hours after the 6400 was shut down. The individuals involved in the upgrade will be unnamed. Special thanks are due to the Control Data Customer Engineers; to the MERITSS, Systems and Operations groups at UCC (especially for their late-night pre-installation efforts); to University Computer Services and its Advisory Committee (for timely completion of the necessary negotiations and paper work); and to MECC (for the speedy review of this procurement).

MERITSS will continue to use the KRONOS operating system during Fall quarter. We expect to convert to NOS 1.3 at the end of December, after thoroughly checking its performance on the Cyber 74/172.

On-line system notes and future Newsletters will inform MERITSS users about future changes.

M. Skow, 373-7745
L. Liddiard, 373-5239

NEW VERSION XEDIT

A new version of XEDIT has been placed on the system as a FUTURE product. It can be used by entering the following commands:

```
X,FUTURE(XEDIT)
X,XEDIT(filename,options)
```

The X, is necessary before the XEDIT command to prevent the system from running the current version of XEDIT.

In addition, a new indexed writeup has been written. To list the XEDIT writeup index, enter the command:

```
WRITEUP(XEDIT)
```

For full documentation on the new features available on XEDIT 3.1, enter the command:

```
WRITEUP(XEDIT=FUTURE)
```

Under the new version of XEDIT, the concept of window margins has been greatly expanded. There are now ten pairs of window margins that can be indexed individually on any command that uses window margins. The PRINT and REPLACE commands have also been enhanced to make use of the window margins.

Several powerful new commands have been added to provide XEDIT with text formatting capabilities.

The following is a list of commands that have been added or changed in XEDIT 3.1, and a brief description of their functions. The abbreviation of the command, if one exists, is shown in brackets:

```
ABORT      Abort XEDIT without writing changes
           anywhere.

ASCII      Change the current character set to full
           ASCII.

BOTTOM n [B]
           Move to the bottom of record n, starting
           at the current pointer position.

EXPAND n [EX]
           Expand the tabs in the next n lines.

FINDLL n,i [FLL]
           Locate the next n lines longer than right
           window margin i.

FINDSL n,i [FSL]
           Locate the next n lines shorter than left
           window margin i.

JUSTIFY n,i,k [J]
           Format the text within window margin i to
           fill window margin k in the next n lines.

LENGTH n [LEN]
           Print the length of the next n lines.

LIST opl,op2,...,opn
           Print information as selected by the
           options. Valid options are ALL, CSET,
           DEL, FLAGS, ESCAPE, MARGINS, Mi, PROFILE,
           TABS, Y, and Z.

LJUSTIFY n,i [LJ]
           Left-justify the text within window
           margin in the next n lines.

LMARGIN n,i [LM]
           Set left window margin i to n.

NORMAL     Change the current character set to
           subset ASCII.

PROFILE n [PR]
           Indent paragraphs n spaces and solicit a
           filler line for the JUSTIFY command.

RJUSTIFY n,i [RJ]
           Right-justify the text within window
           margin i in the next n lines.

RMARGIN n,i [RM]
           Set right window margin i to n.

TRUNCATE n,i [TRUNC]
           Truncate the next n lines to right margin
           i.

WMARGIN n,m,i [WM]
           Set window margin i to n,m.
```

S. Collins, 376-5262

DATA BASE MANAGEMENT

USER GROUP:

With the expansion of data base management systems at UCC (we now have four: System 2000, SIR, DMS170, QUERY UPDATE), users have indicated an interest in forming a DBMS users group. If you are interested in joining, please call me at 376-1761. I will set up a time for an organizational meeting to elect officers and to set objectives. UCC will support the users group in any efforts to improve and increase Data Base Management Systems usage at the University.

SYSTEM 2000 NOTES:

You cannot use the COMPOSE module in System 2000 version 2.60 on the Cyber 74, since the COMPOSE module requires 57200 central memory, greater than the Cyber 74's maximum timesharing validation. An attempt to use COMPOSE on the Cyber 74 will result in a "Fatal Error Trapped" message. We urge all data base users to move their data bases to the Cyber 172.

A comprehensive list of known System 2000 problems is available on microfiche in the UCC Reference Room. This list is known as the early warning system (EWS) documentation. Users should check first with the System 2000 consultant at 376-1761 if they have any questions.

System 2000 Version 2.40 will be removed from all systems (Cyber 74, Cyber 172, Cyber 170) by the beginning of Winter Quarter 1980. Any data bases created with System 2000 version 2.40 can be easily converted to System 2000 version 2.60 merely by accessing these data bases from System 2000 version 2.60. This will automatically update all internal tables to 2.60 structure. If you have any questions, please call 376-1761.

J. Cosgrove, 376-1761

VIDEO TAPE COPIES

Media Resources recently told us that they will, in future, charge for copying video tapes. We, in turn, will pass this expense on to you, if you request copies of our video tapes. The following rates are effective immediately:

SINGLE COPY

Time in hours	1/2	3/4	1
University	\$ 7.78	\$11.67	\$15.55
Nonuniversity	\$11.05	\$16.57	\$22.08

DOUBLE COPIES

Time in hours	1/2	3/4	1
University	\$ 8.66	\$12.89	\$16.91
Nonuniversity	\$12.00	\$18.00	\$24.01

Please send the tapes to be copied, money to cover copying costs, and money to cover return postage (if necessary), to Lincoln Fetcher, 217 Experimental Engineering. Remittance should be

made payable to the University of Minnesota. A list of UCC video tapes can be obtained by using the WRITEUP(VIDEO) control statement.

L. Fetcher, 376-1637

For Sale

There are a number of Portacom PC8110 portable terminals available for \$500.00 each. These new units provide hard-copy, operate at 10 characters per second, and include a built-in acoustic coupler. If interested, contact Dan Whealdon, 376-8153 or 373-4877, for more information.

SHORT COURSES

The University Computer Center (UCC) short courses consist of an "Introductory Group" and seven sequences which emphasize different computing areas. Explanation of the seven categories follows:

TEXT PROCESSING on the computer includes any kind of computerized text or data editing, formatting, concordances, searching and/or matching. What you are reading is an example of text processing - entered, stored, formatted, and printed by the computer.

SCIENTIFIC COMPUTING involves complex numerical calculations, often referred to as "number crunching." This kind of computing usually requires much more computing than reading and writing (input and output) of information.

STATISTICAL COMPUTING derives statistical results from collected data with the aid of statistical packages available on the computer system.

BUSINESS DATA PROCESSING usually includes payroll processing, inventory control, and personnel record-keeping and reports.

DATA BASE MANAGEMENT SYSTEMS (DBMS) allow for easy storing retrieving, querying, and updating of very large amounts of related information. Common uses of DBMS are inventories, and personnel data bases, and mailing lists.

GRAPHICS PROCESSING includes creating visual material with the aid of the computer. Examples are graphs, pictures, movies, art, visual simulation, interactive design, line drawings.

MICROCOMPUTERS - the new "personal computers," used for many kinds of applications. Using "micros" involves some experience with a programming language, and knowledge of the capabilities of the particular micro you're working with.

Listed below are the recommended course sequences for each of the seven categories. Before beginning any sequence, you should either take the "Introductory Group" with an interactive orientation or a batch orientation or both, or have the equivalent knowledge. Each course within a category has a sequence code; the number represents its relative level within the category.

A letter as part of the code indicates a sub-sequence which you must follow within the category. If more than one letter follows a number in a code, the separator between the letters may be a slash ("/") for "or" or an ampersand("&") for "and" - which indicates that you must, in the case of 'or', take one of the lower-level, same letter courses, or in the case of 'and', you must take all of the lower-level, same letter courses. In all cases of prerequisites, equivalent knowledge and experience may be substituted.

Let's say you want to do some work with the TERAK. Your goal is to take the "Using Micros (TERAK)" class. Since its sequence number is "3a/b&d," you first must take courses numbered 1, 2a or 2b, and 2d.

INTRODUCTORY GROUP

- 1 Computing: What is it?
- 2 Introduction to UCC
- 3 NOS (configuration)
- 4 NOS (files/jobs)
- 5 NOS (permanent files)
- 6 NOS (job execution)
- 7a Introduction to Timesharing
- 8a XEDIT
- 7b Introduction to Batch

TEXT PROCESSING

- 1 Introductory Group
- 2 Text Formatting
- 2a Introduction to Programming
- 3a Pascal
- 3a SNOBOL
- 3a Lisp
- 3 NOS (tapes)
- 4 ARCHIVE

SCIENTIFIC COMPUTING

- 1 Introductory Group
- 2 NOS (misc. statements)
- 2 NOS (Cyber Control Lang.)
- 2 Sort/Merge
- 2a Introduction to Programming
- 3a Pascal
- 2b Beginning FORTRAN
- 3b Intermediate FORTRAN
- 3b DMS - 170
- 3b Record Manager
- 3b Programming Style
- 4b Advanced FORTRAN
- 3b Beginning COMPASS
- 4b Intermediate COMPASS
- 2c Introduction to System 2000
- 3c System 2000 User Aids
- 3c System 2000/Report Writer
- 3c Advanced System 2000
- 3b&3c System 2000/PLI
- 2d NOS (tapes)
- 3d ARCHIVE

STATISTICAL COMPUTING

- 1 Introductory Group
- 2 BMDP
- 2 MINITAB
- 2a SPSS (SPSS basics)
- 3a SPSS (data manipulation)
- 4a SPSS (SPSS files)
- 5a SPSS (procedures)
- 5a SPSS (On-Line)
- 5a SIR

BUSINESS DATA PROCESSING

- 1 Introductory Group
- 2 SIR
- 2 NOS (tapes)
- 2 Sort/Merge
- 2a COBOL
- 3a Advanced COBOL
- 3a DMS - 170
- 3a Record Manager
- 3a MPOS/APEX
- 2b Introduction to System 2000
- 3b System 2000 User Aids
- 3b System 2000/Report Writer
- 3b Advanced System 2000
- 3a&b System 2000/PLI

DATA BASE MANAGEMENT SYSTEMS

- 1 Introductory Group
- 2 SIR
- 2a Introduction to System 2000
- 3a System 2000 User Aids
- 3a System 2000/Report Writer
- 3a Advanced System 2000
- 2b COBOL
- 3b Advanced COBOL
- 2c Beginning FORTRAN
- 3c Intermediate FORTRAN
- 4c Advanced FORTRAN
- 3a&b/c System 2000/PLI
- 3b/c DMS - 170
- 2d Introduction to Programming
- 3d Pascal

GRAPHICS PROCESSING

- 1 Introductory Group
- 2a Introduction to Programming
- 3a Pascal
- 4a PASPLOT
- 2b Beginning FORTRAN
- 3b Intermediate FORTRAN
- 3b Graphing Packages
- 3b PLOTPAC
- 3b Art Packages
- 4b Advanced FORTRAN
- 4b Advanced Graphing

MICROCOMPUTERS

- 1 Introductory Group
- 2a Introduction to Programming
- 3a Pascal
- 2b Beginning FORTRAN
- 3b Intermediate FORTRAN
- 4b Advanced FORTRAN
- 2c BASIC Self Instruction
- 2d Introduction to Micros
- 3a/b&d Using Micros (TERAK)
- 3a/c&d Using Micros (AppleII)

The following pages contain descriptions of the individual short courses, and a Fall Quarter schedule can be found on the back page. Remember, you can ALWAYS get the most recent information on short courses from WRITEUP (CLASSES).

Computing: What is it?

This course is directed at those who have had no experience with computing. It covers what computing is, who might use computers, what computers can reasonably be used to do, and what computers and their associated equipment look like. Presentations will include pictures of computer equipment and demonstrations of some applications, a survey of computer languages, terms and applications. There will also be discussions about how to approach problem-solving using computers and how to get access to and use a computer. For the computer neophyte, it is recommended that you take this course before taking any other UCC short courses.

Introduction to UCC.

This is a general introduction to the Computer Center; equipment, terminal locations, account numbers, job submissions, keypunch sites, tape purchase, necessary forms. The Intro course is given each quarter and is one 2-hour session. Anyone who plans to use the computer systems at the University should definitely take this class.

Programming Style.

This class will deal with an examination of various considerations to be made when writing programs in any language. Such things as design, style, pit-falls, common errors, technique, flow charting, structure, and documentation will be discussed. You should have a basic knowledge of a programming language and used the UCC computer systems before.

XEDIT (for beginners).

This course will introduce and explain the University of Minnesota text editing system. The general structure of XEDIT will be discussed and the general command structure will be presented. Examples will be used throughout the course. Before taking this class, you should take the "Computing: What is it?" class as well as "Introduction to Timesharing," or have equivalent knowledge.

XEDIT (basics).

First of the three-day course, this class will give a brief overview of the XEDIT text editing system and discuss the structure of the system and the basic commands with examples. It is assumed students have taken the "Introductory Courses" classes up to this XEDIT class, or have equivalent knowledge.

XEDIT (complex commands).

The second day will deal with more complex XEDIT commands - explained with accompanying examples. Areas covered will be the XEDIT control statement and its parameters, multiple commands and loops, I/O in XEDIT, and exiting XEDIT. It is assumed you're familiar with the basics in XEDIT before you take this class.

XEDIT (new features).

During the last day of this series, the new features of XEDIT will be discussed, as well as some more sophisticated commands in XEDIT for windowing and formatting.

Introduction to Programming.

This course assumes no previous knowledge of programming and will teach the student the basic concepts of problem solving using computers. You will learn to define and break down problems, create algorithms for their solutions, and convert algorithms into working programs using a structured, top-down approach with the Pascal programming language. It is assumed that you have taken the courses in the "Introductory Courses" or have equivalent knowledge.

Pascal.

Pascal is a modern, general-purpose programming language designed as a data structuring successor for Algol-60 and is intended as a convenient basis for teaching programming as well as an efficient tool for writing large or small, general or specific programs. This course introduces the full range of the language, with emphasis on control and data structures available in the language. Many examples are presented throughout the course, and problem assignments are given. Before taking the course you should have previous experience with a programming language and be familiar with UCC computer system usage. Suggested references "Pascal, User Manual and Report," by N. Wirth, and "Systematic Programming: An Introduction," by N. Wirth.

SNOBOL.

SNOBOL4 is a String Oriented and symbol manipulation language used primarily for non-numeric applications. This version of SNOBOL is generalized, possessing data types other than those related to handling strings of characters, such as arrays, tables, code, programmer-defined and real numbers. Programming assignments are given; suggested reference is "The SNOBOL4 Programming Language" by Griswold, et al. Previous experience with programming and UCC computer systems is required.

LISP.

This is a programming language based on Church's lambda calculus featuring list structures and list processing and having applications in symbol manipulation and recursive programming. It has been used extensively in artificial intelligence, particle physics, and natural language analysis research. The course provides an introduction to list structures and recursive programming. Programming assignments are given; recommended references are "The Little LISP'er" by Friedman, and "LISP 1.5 Programmers Manual" by McCarthy, et alia. Prior knowledge of programming and usage of UCC computer systems is required.

APL.

The APL short course serves as an introduction to the operation and use of the APL programming language. The basic data types are presented along with some of their operators. The methods for writing, editing, and saving APL routines are explained. Various applications are demonstrated in order to better explain the usage of the many features of APL. Enough information is

presented to solve a wide range of problems even though many of the more esoteric operators are not discussed. The reference used for this course is the APLUM Reference Manual. You should know a programming language and have had experience on UCC computer systems before taking this course.

COBOL.

A general introduction to the features of the COBOL programming language. Particular emphasis is given to the various statements and what they do. The four divisions of a COBOL program are covered extensively, and all of the verbs in the Procedure Division. No experience with programming is assumed, however it is assumed you have taken the courses in the "Introductory Courses" or have equivalent knowledge. language would be helpful.

Advanced COBOL.

This course will prepare the COBOL programmer to use advanced file organizations with COBOL, such as Indexed Sequential, Actual Key, Direct Access, as well as different record types. The course will also describe differences between COBOL4 and COBOL5 and how to create COBOL source libraries and use the report writer feature. The student should have taken Introduction to COBOL or have experience with COBOL.

Beginning FORTRAN.

A beginners introduction to the FORTRAN programming language. All the basic skills required to start research or classroom projects will be discussed. Examples will be given, as well as computer time to run sample programs. No programming experience is necessary, although it is expected that you will have taken the courses in the "Introductory Courses" or have equivalent knowledge. short course before attending this course.

Intermediate FORTRAN.

In addition to tape usage and character manipulation, the following statements will be discussed; DATA, COMMON, READ, WRITE, EOF, logical IF, ENCODE, and DECODE. This will lead to a discussion of variable formats and internal format generation. Students should have previous FORTRAN experience (like attendance at the "Beginning FORTRAN" short course) and should have an MNF manual for reference.

Advanced FORTRAN.

The course will deal with extended topics in FORTRAN (those not covered in the previous courses), including OVERLAYS, EQUIVALENCE, BUFFER I/O, binary I/O, coding practice and masking. A good knowledge of FORTRAN or attendance at the previous FORTRAN short courses is important and the MNF manual is the suggested reference.

Input/Output in FORTRAN.

The class on FORTRAN I/O will cover the basics of file processing from FORTRAN. The statements to be covered include READ, WRITE, PROGRAM, ENDFILE, EOF function, file substitution, binary and coded files, file

terminology and tape structures. These topics will be related to both tape and disk processing. Previous experience in elementary FORTRAN is required.

BASIC Self Instruction.

This is a beginning programming course in BASIC. The one and only scheduled meeting will be to give you an introduction to programming in BASIC and to explain how the self-instruction works, what help UCC will provide you with, and how to get the workbook for the course. Before attending this course, you should have taken the "Introductory Courses" courses or have equivalent knowledge.

Beginning COMPASS.

COMPASS is the assembly language for the CDC 6000 and Cyber series machines. This course deals with CPU instructions, pseudo instructions, macros, hardware/ organization, interfacing with FORTRAN, and possibly CPU and Common Deck timing. It is assumed you have both previous programming experience, and a good knowledge and experience with CDC 6000/Cyber 70/170 series machines.

Intermediate COMPASS.

This course requires some experience with COMPASS and covers RA+1 calls to PP, CEJ/MEJ, macros/micros, calling sequences, binary, FETS, I/O macros, loader, timing, and SNPSHOT.

NOS (system configuration.)

This class deals with the hardware and software combination which make up the computer system at UCC. The various hardware components are discussed (CPU, CM, PPU, ECS, etc.) to give the user the basic information about how UCC computer systems are put together and how they function. The software component is then discussed to explain how the system operates as a unit. Such things as queues, scheduling, job flow, priorities, and system performance are detailed. It is assumed the student is familiar with computer terms and has a little knowledge about computing, or has taken the "Computing: What is it?" course.

NOS (files/jobs).

Basic concepts involved with file processing and terminology are the subjects for this course. File processing, positioning, terminology, command structure, system constraints, and command sequencing will be discussed. This information is essential to all users of UCC computer systems. It is assumed you have taken the "Computing: What is it?" course or have equivalent knowledge.

NOS (permanent files).

All of the various commands dealing with permanent files will be covered in this class. Direct access, indirect access, costs, sizes, optional parameters, private packs, intermachine transfer, inter-account transfer, billing and archiving will be discussed. Anyone using permanent files in any way on UCC systems (that means everyone!), will find this class essential. You should take NOS (files/jobs) before this class.

NOS (program execution.)

This class deals strictly with the concepts of source vs. binary programs, relocatable and absolute binaries, all the loader commands, libraries, memory usage, and all other aspects of program loading and execution. Take the NOS (permanent files) first or have equivalent knowledge for this class.

NOS (tapes).

The terminology involved with tape processing and all the tape related control statements is the subject of this class. This includes resource allocation, tape capacity, tape unit functions, and information to read the "Tape Users Guide" and make intelligent decisions on how to process tapes. Take the previous NOS classes first or have equivalent experience before taking this class.

NOS (misc. statements).

This class deals with those statements which don't fit into any of the other classifications. Such things as ROUTE, ENQUIRE, HASH, SUBMIT, SETALS, SETJSL, DAYFILE, MODE, EXIT, SETVAL, and others will be covered. Attend at least through the NOS (program execution) class before taking this class.

NOS (control language).

All of the new Cyber Control Language commands (BEGIN, IFE, SKIP, WHILE, etc.) will be covered in this class, as well as the basics of procedure file usage. We will also discuss some of the differences between Cyber Control Language (CCL) and the old NOS Control Language (KCL). You should have taken the NOS classes through 'permanent files' before attending this class.

Introduction to Timesharing.

A discussion of the Timesharing system concepts of primary file, TELEX, TS command processing, and notes and warnings about the use of the system. Intended for the new TS user with some experience but not a lot (ie, the NOS(files/jobs) course).

Introduction to Batch.

This is a beginner's introduction to batch processing. The student is shown how to set up and submit batch jobs. Job deck structure, control statement formats, character set problems, remote entry (RJE) sites, and other related topics are presented. This course is designed to meet the needs of the novice batch user. Before taking this class, you are assumed to have taken the previous courses of the "Introductory Courses" or to have equivalent knowledge.

MODIFY.

Discussion of the general purpose of MODIFY, and how and why it does its editing. All directives are discussed and examples of usage are provided. It is assumed that you have taken the courses in the "Introductory Courses" or have equivalent knowledge.

Record Manager.

An introduction to the Record Manager system explaining what it is and how to use it. Discussions include file organizations, record

types, block types, FILE control cards, File Information Table, Record Manager utilities, and Record Manger products. Some familiarity with the COBOL, FTN, or MNF compilers is important and elementary knowledge of a UCC computer system is assumed, meaning you have taken most of the NOS classes.

Sort/Merge.

An introduction to the Sort/Merge system, explaining what it is and how to use it. The discussions on Sort/Merge will include sort keys, Owncode routines, control card and directive processing, macro processing, sorting in an FTN/MNF program, and Record Manager interfaces. Some familiarity with the COBOL, FTN, or MNF compilers is important and elementary knowledge of a UCC computer system is assumed, meaning you have taken most of the NOS classes.

ARCHIVE.

ARCHIVE is a convenient and reliable utility for dumping permanent files to magnetic tape and reloading them to disk. This seminar will provide an introduction to the features of the ARCHIVE utility with emphasis on the directives which control dumping and loading files. Some familiarity with permanent files and magnetic tapes is assumed.

Introduction to System 2000.

This course introduces the user to SYSTEM 2000, the main data base management system supported on UCC computers. System 2000 provides a mechanism whereby the user can create, modify, maintain and retrieve data from a data base without recourse to a programming language. This introductory course will cover the following areas: data base definition, data loading, privacy, security and integrity features, and natural language updating and retrieval. In addition, a brief overview of the Programming Language System 2000 Interface and the Report Writer feature will be presented. Prerequisites include the full sequence in the "Introductory Courses" or equivalent knowledge.

Advanced System 2000.

This course deals with the advanced technical side of System 2000. The table and fill structures of the data base are presented and used to rigorously examine normalization, WHERE clause optimization, update file usage, scratch file usage, definition optimization, overlay and buffer management, and data size and cost estimation. Students should have previous experience with SYSTEM 2000 or should have taken the "Introduction to System 2000" short course.

System 2000/PLI.

Data bases maintained via the System 2000 data base management system may be accessed for both retrieval and updating via the FORTRAN or COBOL programming languages. This course describes the SYSTEM 2000 precompilers, coding conventions, control card sequences, update statements, retrieval statements, and usage techniques for using SYSTEM 2000 through a programming language. Prerequisites include prior knowledge of FORTRAN or COBOL and System 2000.

System 2000/RW.

System 2000 has the capability to produce complex reports via the Report Writer module. Such things as sorting, breakpoints, hierarchical totals and multiple page are handled directly within Report Writer. This course describes report definitions, counts, sums, expressions, ordering, detail and summary printing, breakpointing, record selection, interconnection with programming languages and report generation. The student should have had experience with System 2000 or should have taken "Intro to System 2000."

System 2000 User Aids.

This course will introduce five products developed at Florida State University which aid in the preparation of data for, and facilitate the design and use of, a System 2000 data base. The five products include: BUILDLDS - A program to convert fixed-field data into a loader string suitable for System 2000; CLEAN - A program to check the validity of fixed field data; S2KEST - A program to aid in the size estimation of a System 2000 data base; S2KNPUT - A system to do interactive data collection and verification and generate a System 2000 loader string; S2K CONTROL CARD - An operating system control card which allows the use of indirect access permanent files with System 2000 as well as the normal System 2000 control card parameters. The student should be familiar with System 2000 or have taken the "Introduction to System 2000" short course before taking this course.

Scientific Information Retrieval.

SIR. SIR is a case-oriented, self contained Data Base Management system, capable of interfacing data with both the SPSS and BMDP statistical packages. Data definition, modification and manipulation will be discussed, along with their respective command types. SIR also has a report generator feature which will be covered. Those attending the class should have taken the sequence in the "Introductory Courses" or have equivalent knowledge and experience with computing. The SIR reference manual, available at university bookstores, is the reference.

DMS - 170.

This course will deal with the DDL (data description language) and the DML (data manipulation language). The Data Description Language is used to describe the data base and the Data Manipulation Language is used to process its contents. The use of COBOL as a Data Manipulation Language will be discussed as well as Query Update, a self contained DML. The course will concentrate on the language characteristics of DMS - 170 as well as how to set up a DMS - 170 data base and access it. The prerequisite is the sequence in the "Introductory Courses" or equivalent knowledge

SPSS (SPSS basics).

This course is section one of four and is for those who have never used SPSS. It covers basic SPSS deck structure and job setup, including explanations of the required SPSS statements for any statistical run. Examples

are presented with each explanation. Before taking the course, the student is assumed to have taken a sequence of courses in the "Introductory Courses" or to have acquired equivalent knowledge.

SPSS (data manipulation).

Section two explains SPSS's capabilities to make changes in raw data, group data, create new data, and deal with missing data. Also discussed will be the methods of selecting or rejecting sub-groups of data and creating other sub-groups by data selection. A basic working knowledge of SPSS and UCC computer systems is assumed.

SPSS (SPSS files).

Section three explains SPSS's capabilities to create and use system files and SPSS internal files, and the commands that control such capabilities. Also discussed are the use of external data and command files. To take this section, the student should have good working knowledge of SPSS and UCC computer systems.

SPSS (On-Line).

Assuming a knowledge of the UCC timesharing system and SPSS, section four introduces the student to the interactive version of SPSS. The differences between SPSS On-Line and SPSS Batch are pointed out during the explanation of how to use the On-Line system.

SPSS (procedures).

The SPSS procedures CONDESCRIPTIVE, FREQUENCIES, CROSSTABS, and BREAKDOWN will be discussed in the first lecture. The SPSS procedure REGRESSION will be discussed in the second lecture. The details of each procedure and their corresponding Control Cards and Statistics and Options selections will be discussed. Attendees should have prior experience with the computer system, and especially the SPSS package, and some knowledge of the statistical ideas involved in these procedures. The McGraw Hill SPSS Manual, available from the University Bookstores, and the UCC update publication SPSS REGRESSION are the references.

BMDP.

An introduction to BMDP programs explaining what it is and how to use it. Discussions include BMDP program control language, deck setup, statistical analysis in BMDP programs and a sample description. Prerequisites include taking the courses in the "Introductory Courses" or having equivalent knowledge.

MINITAB.

This is an easy-to-learn, easy-to-use, flexible, and powerful statistical computing package designed to handle small to medium data sets. MINITAB runs interactively or in batch mode. This course will explain the use of MINITAB, its commands and format, with examples. It is assumed the student will have taken the "Introductory Courses" or have equivalent knowledge.

Introduction to Micros.

This course introduces students to the world of microcomputers. You will learn what a microcomputer is, the differences from other computers - size, capabilities, and costs; what kinds of applications micros are used for and what the limits may be for those applications; what varieties of hardware and configurations are available; what you need to know to use a microcomputer. You will also be introduced to some of the terms and jargon used in microcomputing; you'll get an explanation of the extent of UCC's support to micros and what UCC services are available to micro users, and how to interface a micro to UCC computer systems. It is assumed that you have some prior knowledge of computing or have taken the "Computing: What is it?" class.

Students should know FORTRAN and have attended the PLOTPAC and Graphing short courses, or have equivalent knowledge of graphing packages.

Art Packages.

General introductory lecture/workshop on computer art and art programming at the University. Discussion of equipment used, style, limitations, advantages, and overall concepts are included. Examples, including work from good computer artists will be discussed. Usually 3 days, 2 hours per day.

L. Fetcher, 376-1637

Using Micros (TERAK).

In this class, you will learn about the TERAK microcomputer, its capabilities, limitations, applications and programs available, what documentation is available, and how to use it. The hardware components/configuration will be explained, demonstrations will be given, and an exercise will be assigned, including hands-on experience. The "Introductory Courses" and "Introduction to Micros" classes or equivalent knowledge, and experience in Pascal or FORTRAN are prerequisites for this class.

Using Micros (AppleII).

Explanation of the AppleII microcomputer will be the subject of this class. Areas covered will be the hardware components and configuration, differences in the Applesoft BASIC from standard BASIC, the programs/applications packages available for Apple, documentation - where to get it, and how to use the AppleII. Before taking this class, it is assumed you have taken the "Introductory Courses" and "Introduction to Micros" classes - or have equivalent knowledge, and have a working knowledge of either BASIC or Pascal.

PLOTPAC.

is is a general introductory lecture and workshop on using UCC's collection of FORTRAN callable plotting subroutines. It covers techniques for using various plotting equipments. The course is given at Lauderdale where turnaround is faster. The course is usually three 2-hour sessions. Prerequisite is elementary knowledge of FORTRAN.

Graphing Packages.

This is an introductory workshop directed toward instruction on the FORTRAN callable packages for printer and line plotting at the University Computer Center. After a presentation of some techniques and examples along with instruction on usage, students will be given an opportunity to use the packages themselves. A previous knowledge of FORTRAN is required.

Advanced Graphing.

This course will be an extension of the PLOTPAC short course and will cover, in greater detail, PLOTPAC graphing subroutines for graphical representation of data.

USAGE STATISTICS

PRODUCTION USAGE SUMMARIES: Cyber 74/172

	Cyber 74/172 July, 1979	Cyber 74/172 July, 1978
System resource units (SRU)	1,063,467 (1,379,539)	893,546 (1,106,324)
Batch jobs and MIRJE sessions	99,551 (111,275)	86,008 (99,169)
Central processor hours inc. DELAY	144/149 (159/246)	207/18 (255/79)
DELAY queue processor hours	34/21 (39/41)	65/0 (72/0)
MIRJE terminal hours	13,741 (15,971)	8,172 (9,866)
Mass storage transfers (KPR)	339,992 (437,337)	254,192 (388,958)
Magnetic tape transfers (KPR)	6,770 (11,574)	6,090 (8,961)
Pages printed, charged from UCC	922,143 (1,049,529)	813,685 (935,408)
Cards punched	325,704 (385,305)	497,815 (514,393)
Microfilm frames produced	18,313 (377,849)	19,514 (315,754)
Number of terminal sessions	31,023	
Status plotting production (feet)	9,899	8,266
Tapes mounted	12,000	10,725
Average file storage (char)	1,951.4 million	1,767.1 million
Mean time between failures	46.6/102.6 hours	27.2 hours
Available during scheduled hours	99.1/98.9 percent	97.3 percent
SUPIO uptime during available hours	98.0 percent	96.5 percent
(totals in parentheses include staff development, accounting, and maintenance runs)		

DOWNTIME SUMMARY: August, 1979 (Column 1, Cyber 74 : Column 2, Cyber 172)

	0800-1800 M-F		other		total	
Total possible scheduled uptime hours	230.0	230.0	321.0	321.0	551.0	551.0
Total downtime hours (see Schedule A)	4.7	3.5	2.5	2.8	7.2	6.3
Total uptime hours	225.3	226.5	318.5	318.2	543.8	544.7
Uptime (percent)	98.0	98.5	99.2	99.1	98.7	98.9
Average downtime per occurrence (min)	31.2	34.8	25.2	41.5	28.8	37.5
Mean time between failures (hours)	25.6	38.3	53.5	80.3	36.7	55.1
Subsystem failures						
SUPIO	5	-	0	-	5	-
TELEX	2	1	0	1	2	2
EXPORT	2	-	1	-	3	-

Schedule A: downtime hours

	Number		Total hours		Average minutes	
(1) Preventive maintenance over-runs	0	0	0.0	0.0	0.0	0.0
(2) Software related problems	3	1	0.4	0.1	7.3	4.0
(3) Hardware related problems	5	4	3.8	2.2	45.2	32.8
(4) Indeterminate problems	1	0	0.1	0.0	3.0	0.0
(5) External Problems	6	5	3.0	4.0	30.1	48.0

PRODUCTION USAGE SUMMARIES: CDC 6400

	July, 1979	July, 1978
Number of jobs run	99,700	92,064
Central processor hours	134.2	103
MERITSS terminal hours	11,648	11,253
Number of terminal sessions	24,514	21,859
Maximum number of simultaneous users	73	67
Average file storage (char)	383.3 million	327.8 million
Mean time between failures	116.2 hours	92.8 hours
Available during scheduled hours	99.2 percent	99.3 percent

Computing: What is it?.....; 3:15-5pm, Oct 1-4 (mtwth), ForH 115, LF/SG
 Introduction to UCC.....; 3:15-5pm, Oct 5 (f), Arch 10, RTF
 System 2000/PLI.....; 3:15-5pm, Oct 1-5 (mwf), VH 113, JCC
 Beginning COMPASS.....; 3:15-5pm, Oct 1-12 (mwf), Aero 319, KCM
 NOS (system configuration)..; 3:15-5pm, Oct 8 (m), ForH 115,RTF
 NOS (files/jobs).....; 3:15-5pm, Oct 9-10 (tw), ForH 115, RTF
 NOS (permanent files).....; 3:15-5pm, Oct 11 (th), ForH 115, RTF
 NOS (program execution).....; 3:15-5pm, Oct 12 (f), ForH 115, RTF
 NOS (tapes).....; 3:15-5pm, Oct 15 (m), ForH 115, RTF
 NOS (misc. statements).....; 3:15-5pm, Oct 17 (w), ForH 115, RTF
 NOS (control language).....; 3:15-5pm, Oct 19 (f), ForH 115, RTF
 Record Manger.....; 3:15-5pm, Oct 8-12 (mwf), VH 113, SAR
 Sort/Merge.....; 3:15-5pm, Oct 9-11 (tth), VH 203, SAR
 XEDIT (for beginners).....; 2:15-4pm, Oct 17 (w), MechE 18, ABM
 Introduction to Timesharing.; 3:15-5pm, Oct 16-18 (tth), VH 113, RTF
 Introduction to Batch.....; 2:15-4pm, Oct 16 (t), Arch 30, MB
 Fall Users Meeting.....; 3:15-5pm, Oct 18 (th), Arch 25
 Introduction to Programming.; 3:15-5pm, Oct 22 - Nov 9 (mwf), Aero 319, RM
 Beginning FORTRAN.....; 3:15-5pm, Oct 23 - Nov 15 (tth), VH 311, RTF
 BASIC Self Instruction.....; 3:15-5pm, Oct 25 (th), VH 113, MT
 Introduction to System 2000.; 2:15-4pm, Oct 22 - Nov 2 (mwf), MechE 18, JCC
 COBOL.....; 7:15-9pm, Oct 22 - Nov 9 (mwf), Arch 15, DR
 Graphing Packages.....; 7:30-9:30pm, Oct 22-24 (mtw), Laud*, KMM
 PLOTAC.....; 7:30-9:30pm, Oct 29-31 (mtw), Laud*, KMM
 SPSS (SPSS basics).....; 2:15-3:30pm, Oct 29 (m), Ph 150, BH
 SPSS (data manipulation)....; 2:15-3:30pm, Oct 30 (t), Ph 150, BH
 SPSS (SPSS files).....; 2:15-3:30pm, Oct 31 (w), Ph 150, BH
 SPSS (workshop).....; 2:15-3:30pm, Nov 1 (th), Ph 150, BH
 System 2000 User Aids.....; 3:15-5pm, Oct 30 - Nov 1 (tth), VH 203, DK
 XEDIT (basics).....; 2:15-4pm, Nov 5 (m), MechE 18, PG
 XEDIT (complex commands)....; 2:15-4pm, Nov 7 (w), MechE 18, PG
 XEDIT (new features).....; 2:15-4pm, Nov 9 (f), MechE 18, PG
 System 2000/RW.....; 2:15-4pm, Nov 5-9 (mwf), Smith 315, SPN
 SPSS (procedures).....; 2:15-3:30pm, Nov 6-8 (tth), Smith 315, BH
 SIR.....; 3:15-5pm, Nov 6-15 (tth), VH 113, JCC
 Pascal.....; 3:15-5pm, Nov 12-30 (mwf), Aero 319, LF
 Advanced System 2000.....; 2:15-4pm, Nov 12-16 (mwf), Smith 315, SPN
 MINITAB.....; 2:15-3:30pm, Nov 12-14 (mw), MechE 18, BH
 SPSS (On-Line).....; 2:15-3:30pm, Nov 16 (f), MechE 18, BH
 Introduction to Micros.....; 3:15-5pm, Nov 12-13 (mt), ForH 115, GG
 Using Micros (TERAK).....; 3:15-5pm, Nov 14-15 (wth), ForH 115, GG
 Using Micros (AppleII).....; 3:15-5pm, Nov 19-20 (mt), ForH 115, BW
 DMS - 170.....; 3:15-5pm, Nov 19-21 (mtw), VH 113, JCC
 APEX/MPOS.....; 3:15-5pm, Nov 27-29 (tth), Aero 319, JCC

November 22 & 23 are University holidays so no classes will be held.

* Lauderdale Conference Room, Lauderdale Computer Site, 2520 Broadway Dr.,
Lauderdale, Mn

RETURN TO:
 User Services
 University Computer Center
 227 Experimental Engineering
 University of Minnesota
 208 Union Street SE
 Minneapolis, Minnesota 55455

UNIVERSITY ARCHIVES
11 WALTER LIBRARY
UNIVERSITY OF MINNESOTA
EAST BANK
117 PLEASANT STREET SE
MINNEAPOLIS MN 55455