MIW
QC739
b

# Contents

Director: Peter C. Patton
Editor   : Naomi Miner

Comments about the content of this newsletter, or suggestions for changes may be directed to the editor, 235a Experimental Engineering, or call 612/376-4668.

## holiday hours

|      | Laud         | ExpEng       |
|------|--------------|--------------|
| DOWN | 2400 FRI 7/3 | 1600 FRI 7/3 |
| UP   | 1600 SUN 7/5 | 1600 SUN 7/5 |

## EBR retires

The Electron Beam Recorder which we have used for over a decade to produce 16mm microfilm will be retired June 30, 1981. We now have a contract to produce microfiche through a service bureau. A description of this service is available through WRITEUP(SERVICE=FICHE). We have previously sent a letter to everyone who used the EBR from July 1, 1980 through February 28, 1981, notifying them of this change. We trust that no one will be seriously inconvenienced. Questions? Call Carol Winther at 373-4995 or

J. Larson, 373-7538

## SIR 2.0 seminar

A SIR 2.0 seminar will be given by Professor Gary D. Anderson on August 26, 27 and 28, 1981 at the University of Minnesota in 2-520 Health Sciences Unit A. If you are interested in this seminar write or phone Mr. Anderson at

    P.O. Box 153
    Lynden, Ontario CANADA
    LOR ITO
    phone 519-647-2843

or

    Box 1404
    Evanston, Illinois 60204
    phone 312-475-8332

## UNDERLN terminal type

On page 44 of our April 1981 issue I announced the new UNDERLN terminal type. I failed to mention that in order to use the underline and overprinting capabilities of this terminal type you must be in full ASCII mode. After logging into the system, simply enter:

    ASCII
    TERM,UNDERLN

and then use text mode to enter your information. I am sorry for this oversight and apologize to those of you who called for an explanation of the correct usage.

R. Franta, 376-3963

## S2000 users meet

The April 30th System 2000 Users Meeting included a presentation by the State Auditors Department on their use of System 2000. They discussed how and why they use Report Writer, with some general comments on Report Writer problems, Queue Access problems, and partial trace problems.

B. Cook, 376-9628

## suggestion box

My teachers in Architecture School recommend learning BASIC as a first computer language. Could you offer a course in Beginning BASIC this summer? Their second choice is FORTRAN. Could this be offered this summer?

L. N. 4/81

BASIC will not be offered, FORTRAN will. See the Summer Short Course Schedule in this Newsletter for details. We rarely offer BASIC courses because there is very little demand for them.

As for a first language, I would suggest you learn Pascal -- a more general purpose language than either BASIC or FORTRAN. Pascal is a modern language designed to teach good programming habits.

L. Fetcher, 376-1637

Don't let consultants play their radios in the users' room. It's hard for the users to concentrate. When I asked the consultant to turn it off, he said that if I wanted to work in quiet, I should go to a library.

D. G. 5/81

I'm sorry you feel you were inconvenienced. Though you failed to specify the date and time you encountered this problem, I was able to talk to the consultant on duty at that time. He said that he had asked the users present whether they objected to the radio. They had said, no, on the contrary they'd be glad to have it on. You were out of the room at that time.

While the consultant was perhaps a bit brusque in his response to you, in substance he was correct: the users' room is not a quiet area like a library. There is keypunch noise from next door, loud ventilation equipment, and conversation among users and consultants. During weekday consulting hours, the consultants are usually busy enough that radio playing would be undesirable. On weekends and evenings, however, we provide many hours of consulting despite consistently low demand. The student consultants must be at the desk even when there are no questions from users. I don't believe it is out of place to play a radio quietly at such times, provided that the consultant is willing to turn it off, if courteously asked.

S. Graffunder, 376-1637

## summer consulting

From June 16 to September 28, the general consulting service's hours will be reduced, due to low demand. At 140 ExpEng summer hours will be 10-12 AM and 1-3 PM. Evening consulting will be 7-9 PM Tuesday and Thursday during Summer Session I and 7-9 PM Monday and Wednesday during Summer Session II. There will be no consulting on weekends. Lauderdale consulting hours will be 1:30-3:30 PM Tuesdays. There will be no evening consulting at Lauderdale. Evening consulting and Lauderdale consulting will end August 21.

S.K. Graffunder, 376-1637

(The author is the Associate Director, Systems and Planning for the University Computer Center.)

In addressing the future of computing at the University and the role that this center will play in the next few years, I believe there are three essential topics for discussion: personnel, communication, and communality. I started to write this article on new computing devices, software packages, and those other "things" that typically make up a forecast, but found that the three essentials kept modifying and directing the article. Thus, I will allow each of these topics to dominate individual sections of this paper.

## PERSONNEL

When computing center budgets are broken into percentages spent, personnel usually consumes 45 to 55%, processors, software, and their maintenance are 25 to 30%, communications and terminals are 8 to 12%, and supplies and services another 8 to 12%. Thus any discussion of the future must center on the largest cost of computing – personnel. Since the basic worth and human dignity of computing personnel require that their labor be meaningful (not to mention properly compensated), we must do the following for our staff and users:

### Programming Activity

1) Provide high level languages, allowing a programmer to obtain results in a reasonable time.

2) Provide dialogue with the computer so when the programmer errs, post mortem dumps, interactive debug, and on-line "Help" will produce quick and good "fixes" to the program.

3) Supply accurate and well-written documentation for the programs and processes supported on the computer. Although not all programs can be supported in such a maner, new acquisitions will be.

4) Schedule good training courses and a centralized telephone number for special help services.

### Operator Activity

1) Eliminate tedious, repetitive tasks by allowing users to enter their own data (interactive terminals and simplified remote job entry stations) and allow billions of characters on-line at a reasonable cost so that most magnetic tape mountings can be eliminated.

2) Purchase hardware and software that is sufficiently reliable to run unattended during the late night and early hour periods, yet give users 24-hour, 7-day service.

## COMMUNICATION

Computer inter-communication at the University is currently through Northwestern Bell lines. The cost of private lines and associated equipment has risen rapidly in the last few years and that, combined with expensive modem costs for baud rates greater than 4800, limits future use of the Bell system. In addition, the University's 373 and 376 CENTREX system is near saturation with 18,000 phones (we have 150 to 200 continuously busy interactive and batch lines from 8 AM to 5 PM). Thus we actively participated in the University-wide committee that examined replacement in 2 or 3 years of the current Bell system with a digital phone system. The committee examined a number of systems (including INTECOM and General Dynamics) that could provide 56,000 baud switched lines for the entire University at approximately $900 to $1300 per station ($18 to 26 million for 20,000 phones). However, the committee decided to continue with the current CENTREX system until the digital technology stabilizes and becomes more cost-effective. Thus we are considering the implementation of either our own digitally- switched system for 1000 to 2000 stations ($.9 to $2.6 million total cost) on the St. Paul, East and West bank campuses, or our own cable TV channel connection between campuses with X.25 packet switching from local sites to the back-bone cable TV channels. Without some form of reasonably priced, high baud rate, digitally-switched communication among University sites, centralized computing, printing, and mass storage will give way to personalized, segregated computing in the late 1980's, resulting in a correspondingly higher total cost for the University.

During the next 5 years, we see laser printers, high speed graphics devices, vector processors, and data base machines as examples of computing devices that can be cost-justified at central sites, but less so at local sites. Not only is good inter-machine communication a necessity, but good communication is required in documentation as well. Future computers must also be easy to use. As a result, besides selecting computing equipment based on total computing power per dollar, we also require availability of good documentation and user-oriented software.

## COMMUNALITY

When I first subscribed to the Communcations of the ACM in 1961, the January issue showed a tower of computer languages including FORTRAN, COBOL, LISP, and IPC, topped out by the new language ALGOL. The tower was appropriately labeled BABEL 1960. Although many of the seventy-three languages named on the tower have quietly died, the intervening 20 years have seen at least that many new languages added to our computer vocabulary. A cornerstone to communality is the acceptance of standards. In computing, standard language compilers should be the norm along with standard characters (ASCII) and standard labels for tapes. The use of standards ensures transportability among the various processors that the University will have in the next five years. It will also ensure that your research and instructional material can be used at other universities or by your colleagues. We hope that the next few years will see the introduction of standards for command and control languages, post mortem and interactive debugging, and communication protocols beyond basic X.25.

Although university computer centers are often required to have every possible package and language on their computers, this is not necessarily the best way to achieve cost effective computing. If we can agree on specific languages, protocols, and computing systems as the basis for an entire university computing community, then many benefits can accrue in the areas of computer training and education, reduction of the number of staff required to document, maintain, and support additional systems, and in the interconnection of computing devices. To be specific: we concentrate on the COBOL, FORTRAN, and Pascal languages (BASIC and APL are on the system, but at a lower support level), on System 2000 and SIR as the data base languages, on DISSPLA and TELL-A-GRAF for graphics, and on UCSD Pascal and UNIX for micro- and mini-computer operating systems. We have selected the Terak and Apple for microprocessor systems, and we will select the best additional software and systems after getting industry, user, and expert advice. Finally, quantum leaps in our computer acquisitions, such as the CDC 6600 over the CDC 1604 and the Cray 1 over the Cyber 74, will ensure long-term stability of programs rather than emphasize constantly changing systems.

Conclusions
We believe that we have identified the three critical elements of our future success. Thoughtful and careful treatment of these elements will enable us to do the required computation in the next five years with state-of-the-art equipment, a professional and competent staff, and at the lowest cost for the users and the taxpayers of the State of Minnesota.

L. A. Liddiard, 373-5239

# SYSLIB restructured

On June 14, we will change the System Library SYSLIB by removing all local versions of common decks. The deleted routines will be moved to a new FETCH type library, RELLIB.

When we introduced the binaries of the common decks into SYSLIB, this library had very limited usage by CDC products and contained only a small number of routines. At that time the common decks available on SYSLIB were convenient for relocatable programs in debug stage. Now the convenience has become too costly because of problems caused by the existence of duplicate entry names and the increased library size.

Users of local versions of common decks from SYSLIB, such as EDT (Edit Date and Time from packed format), MTP (Managed Table Processor), UPC (Unpack Control Card), FPD (Floating Point Display conversion), SNP (SNAPSHOT Processor) or ZFN (Zero Fill Name), can obtain those binaries from RELLIB. The statement FETCH(RELLIB) retrieves RELLIB and defines it as a user-type library.

The statements:

    FETCH(RELLIB)
    CATALOG(RELLIB,U)

produce a list of all the SYSLIB entry points that have been placed on RELLIB.

M. Riviere, 376-5606

# statistics

***PRODUCTION USAGE SUMMARIES: Cyber 74+172

| | April, 1981 | April, 1980 | % Change |
|---|---|---|---|
| System resource units (SRU) | 1,381,900 (1,798,686) | 1,376,663 (1,758,129) | 0.3 ( 2.3) |
| Batch jobs and MIRJE sessions | 124,156 ( 136,369) | 119,276 ( 130,148) | 4.1 ( 4.8) |
| Total central processor (CP hours) | 145/238 ( 155/391) | 161/217 ( 192/311) | -19.3 / 25.7 |
| DELAY queue CP hours | 36/ 44 ( 38/ 78) | 38/ 41 ( 38/ 58) | ( 0.0 / 34.5) |
| NO FRILLS queue CP hours | 22/ 21 ( 22/ 22) | 20/ 24 ( 20/ 24) | ( 10.0 /- 8.3) |
| Mass storage transfers (KPR) | 497,481 ( 607,250) | 459,843 ( 566,755) | 8.2 ( 7.1) |
| Magnetic tape transfers (KPR) | 9,943 ( 14,782) | 10,998 ( 17,857) | -9.6 (-17.2) |
| Pages printed, charged from UCC | 881,217 (1,006,172) | 973,545 (1,101,353) | -9.5 (- 8.6) |
| Cards punched | 232,391 ( 246,076) | 298,129 ( 339,183) | -22.1 (-27.5) |
| Microfilm frames produced | 28,590 ( 549,610) | 25,927 ( 479,746) | 10.3 ( 14.6) |
| MIRJE terminal hours | 17,741 ( 20,253) | 15,142 ( 17,536) | 17.2 ( 15.5) |
| Number of terminal sessions | 47,331 | 37,550 | 26.0 |
| Statos plotting production (feet) | 9,246 | 8,975 | 3.0 |
| Tapes mounted | 11,331 | 12,565 | -9.8 |
| Average file storage (char) | 3,487.0 million | 2,991.7 million | 16.6 |
| Mean time between failures | 66.1/58.8 hours | 42.4/ 56.6 | 55.9 / 3.9 |
| Available during scheduled hours | 99.4/99.4 percent | 98.6/ 99.4 percent | 0.8 / 0.0 |

(totals in parentheses include staff development, accounting, and maintenance runs)

DOWNTIME SUMMARY: May, 1981 (Column 1, Cyber 74 : Column 2, Cyber 172)

| | 0800-1800 M-F | | other | | total | |
|---|---|---|---|---|---|---|
| Total possible scheduled uptime hours | 200.0 | 200.0 | 321.3 | 321.3 | 521.3 | 521.3 |
| Total downtime hours (see Schedule A) | 0.5 | 1.2 | 0.5 | 1.2 | 1.0 | 2.4 |
| Total uptime hours | 199.5 | 198.8 | 320.8 | 320.1 | 520.3 | 518.9 |
| Uptime (percent) | 99.7 | 99.4 | 99.8 | 99.6 | 99.8 | 99.6 |
| Average downtime per occurrence (min) | 7.8 | 23.7 | 10.0 | 23.7 | 8.7 | 23.7 |
| Mean time between failures (hours) | 50.0 | 66.7 | 107.1 | 107.1 | 74.5 | 86.9 |
| Subsystem failures | | | | | | |
| SUPIO | 2 | – | 2 | – | 4 | – |
| TELEX | 0 | 0 | 0 | 0 | 0 | 0 |
| EXPORT | 8 | – | 2 | – | 10 | – |

Schedule A: downtime hours

| | Number | | Total hours | | Average minutes | |
|---|---|---|---|---|---|---|
| (1) Preventive maintenance over-runs | 0 | 1 | 0.0 | 0.1 | 0.0 | 2.0 |
| (2) Software related problems | 3 | 3 | 0.5 | 1.6 | 10.3 | 32.0 |
| (3) Hardware related problems | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 |
| (4) Indeterminate problems | 2 | 1 | 0.1 | 0.1 | 3.0 | 4.0 |
| (5) External Problems | 2 | 1 | 0.4 | 0.7 | 12.0 | 40.0 |

***PRODUCTION USAGE SUMMARIES: Cyber 170-720 (MERITSS)

| | April, 1981 | April, 1980 | % Change |
|---|---|---|---|
| Number of jobs run | 289,308 | 213,281 | 35.6 |
| Central processor hours | 182 | 119 | 52.9 |
| MERITSS terminal hours | 36,878 | 30,033 | 22.8 |
| Number of terminal sessions | 84,887 | 67,586 | 25.6 |
| Maximum number of simultaneous users | 179 | 152 | 17.8 |
| Average file storage (char) | 470.6 million | 524.9 million | -10.3 |
| Mean time between failures | 164.1 hours | 59.3 hours | 176.7 |
| Available during scheduled hours | 99.7 percent | 98.8 percent | .9 |

# short courses

```
-----------------------------------------------------------------------
^Introduction to UCC...........; 9:15-11am, 18 Jun (th), Arch 5
^NOS (for beginners)...........; 9:15-11am, 22 - 25 Jun (mtwth), AldH 310
^Interactive System Commands...; 9:15-11am, 29 Jun-2 Jul (mtwth), AkerH 225
^XEDIT.........................; 2:15-4pm, 13 - 17 Jul (mwf), B25 ClaOff
 Beginning COBOL...............; 3:15-5pm, 7 - 30 Jul (tth), Arch 15
 Beginning FORTRAN.............; 3:15-5pm, 20 Jul-7 Aug (mwf), Arch 15
 Introduction to DBMS´s........; 3:15-5pm, 6 Jul (m), HodsonH 495
 Introduction to System 2000...; 3:15-5pm, 8 - 24 Jul (mwf), HodsonH 495
 SIR...........................; 9:15-11am, 21 Jul-6 Aug (tth),Arch 15
 SPSS (SPSS basics)............; 3:15-5pm, 7 - 8 Jul (tw), Arch 40
 Introduction to Programming...; 9:15-11am, 21 Jul-6 Aug (twth), AldH 310
*PLOTPAC.......................; 6:30-9:30pm, 21 - 23 Jul (twth), Laud
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NOTE:
^: up-arrow (^) indicates this course is a prerequisite for other, unmarked courses.

HOLIDAY: 3 July (f) is a University holiday. No classes will be held.

*: Class held at Lauderdale conference room, Lauderdale computer site, 2520 Broadway Drive, Lauderdale, MN.

For more information concerning these short courses, see WRITEUP(CLASSES) or call Lincoln Fetcher at 376-1637.


## Summer 1981 UCC Extension Classes


This class is offered through University of Minnesota Continuing Education and Extension (CEE). You may obtain more information and registration materials by calling (612) 373-3195 or by going to 101 Wesbrook Hall, U of M Minneapolis campus.
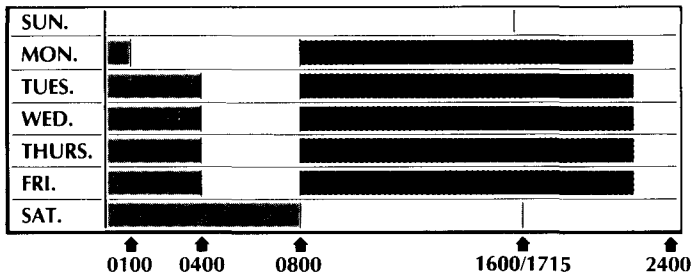

class; cost                    dates (days), times, location
CEE course number


Computing: What is it?; $24.. 22 Jun - 1 Jul    (mtw), 6:15-8pm, NichH 45.
PIC 0811

# operations

## CYBER 74 + 172 OPERATING HOURS

| | | | | | |
|---|---|---|---|---|---|
| SUN. | | | | | |
| MON. | | | | | |
| TUES. | | | | | |
| WED. | | | | | |
| THURS. | | | | | |
| FRI. | | | | | |
| SAT. | | | | | |

0100  0400  0800  1600/1715  2400

■ Lauderdale, ExpEng, NORMAL rate
Lauderdale, ExpEng, DELAY rate
■ Lauderdale only, DELAY rate

See WRITEUP(HOURS) for schedule of batch job pickup/delivery service.

## CYBER 720 OPERATING HOURS

| | | | | | |
|---|---|---|---|---|---|
| SUN. | | | | | |
| MON. | | | | | |
| TUES. | | | | | |
| WED. | | | | | |
| THURS. | | | | | |
| FRI. | | | | | |
| SAT. | | | | | |

0130  0745  1600/1715  2400
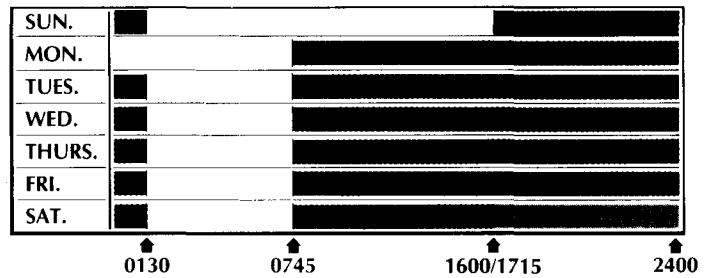
■ Up, not attended
■ Up, attended

See WRITEUP(LABHOUR) for a schedule of open hours in the student computer laboratories.

## TWIN CITIES CAMPUS PUBLIC REMOTE JOB ENTRY SITES

| SITE | ID | SUPERVISOR | PHONE |
|---|---|---|---|
| **East Bank** | | | |
| ElectE 38 | 4V | V. Zahhos | 373-5346 |
| EltH N640 | 4W | D. Anderson | 373-5827 |
| ExpEng 130 | 3L | I/O Coordinator | 373-4596 |
| ExpEng 130 | 4B | I/O Coordinator | 373-4596 |
| ExpEng 130 | 4N | I/O Coordinator | 373-4596 |
| FrontH | 4E | D. Schumacher | 373-2740 |
| HSUnitA | 4C | L. Croatt | 373-7714 |
| KoltH S191 | 4Z | | |
| MinMet 321 | 41 | R. Larson | 376-2668 |
| 102 OMWL | 29 | H. Young | 373-5370 |
| Physics 69 | 44 | L. Whitney | 376-7627 |
| TerrH W106 | 41 | B. Hackett | 373-6621 |
| D388 Mayo | 24 | L. Croatt | 373-7714 |
| Zoology 314 | 4J | E. Cushing | 373-2232 |
| **West Bank** | | | |
| SocSci 167 | 4X | D. Lund | 373-3608 |
| SocSci 1009 | 4K | M. Mongiat | 373-0168 |
| **St. Paul** | | | |
| BioSci 257A | 47 | M. Simmons | 373-1961 |
| ClaOff 125G | 48 | C. Bingham | 373-0988 |
| McN H | 42 | G. Wahlert | 373-0939 |
| NorH 24 | 4G | J. Colten | 373-0990 |
| NorH 24 | 40 | J. Colten | 373-0990 |
| **Lauderdale** | | | |
| User's Room | 49 | Secretary | 373-4912 |
| User's Room | 3F | Secretary | 373-4912 |

Keypunches provided at each site.

## TWIN CITIES INSTRUCTIONAL COMPUTER LABORATORIES

| SITE | SUPERVISOR | PHONE | EQUIPMENT |
|---|---|---|---|
| **East Bank** | | | |
| CentH | R. Rickgarn | 3-2289 | TTY33(2) |
| ComH | C. Youngdale | 3-2453 | TTY43(1) |
| DiehlH 535 | N. Sauro | 6-7005 | CRT(2) |
| EltH 121, 125 | D. Anderson | 3-5827 | TTY33(6) |
| | | | Hazeltine(3) |
| | | | Teleray(2) |
| FrontH | D. Schumacher | 3-2740 | TTY33(1) |
| HS-A 1-752 | L. Ellis | 3-0331 | TTY33(3) |
| | | | TTY43(3) |
| | | | Teleray(1) |
| | | | Decwriter III(1) |
| | | | Decwriter(1) |
| LindH 25 | T. Chan | 3-7580 | CDC713(6) |
| | | | Decwriter (5) |
| | | | Decwriter III(1) |
| | | | Teleray(1) |
| | | | TTY43(16) |
| MechE 308 | E. Riley | 3-0340 | TTY33(2) |
| | | | Teleray(4) |
| | | | Decwriter(7) |
| | | | Decwriter III(1) |
| SanfH | M. Kilbury | 3-3434 | TTY33(1) |
| TerrH | B. Hackett | 3-3567 | TTY33(1) |
| VincentH 4 | W. Stenberg | 3-2586 | TTY33(2) |
| | | | CDC713(2) |
| | | | Decwriter III(1) |
| | | | Decwriter(7) |
| | | | Teleray(2) |
| WaLib 204 | R. Estelle | 3-2538 | TTY43(9) |
| | | | CRT(2) |
| **West Bank** | | | |
| BlegH 140 | D. Lund | 3-3608 | TTY43(13) |
| | | | Teleray(1) |
| MdbH | R. Baker | 3-9818 | TTY33(1) |
| SocSci 167 | D. Lund | 3-3608 | TTY33(2) |
| | | | Teleray(1) |
| | | | Decwriter(2) |
| **St. Paul** | | | |
| ClaOff 125 | C. Bingham | 3-0988 | TTY33(6) |
| | | | Hazeltine(2) |
| | | | Decwriter III(1) |
| | | | Decwriter(4) |

# phone numbers

Accounting ...............................373-4548
Computer-Aided Instruction ..............376-2975
Computer Hours (recorded message) .......373-4927
Computer Store ..........................373-4877
Consulting
   HELP-line .............................376-5592
      9 AM—5 PM, Monday—Friday
   Business Data Products ................376-1761
      10-11 AM and 1-3 PM, Monday—Friday
   Statistics Packages ...................376-5062
      1-2 PM, Monday—Friday
   Data Bases ............................376-1761
      10-11 AM and 1-2 PM, Monday—Friday
   Microcomputers ........................376-4276
      10-12 AM and 2-4 PM, Monday—Friday
   Humanities ............................373-5780
      10:30-11:30 AM, Monday, Wednesday, Friday
Contract Programming ....................376-1764
Data Base Applications...................373-7878
Educational Services ....................376-3963
EDUNET Interface ........................373-7745
Equipment Purchase.......................376-8153
Experimental Engineering I/O ............373-4596
Field Engineering .......................376-7584
Graphics Software .......................376-1636
HELP-line ...............................376-5592
      9 AM—5 PM, Monday—Friday
HOURS-line (recorded message) ...........373-4927
Image Processing Center .................373-7878

Information, Experimental Engineering ...373-4360
Information, Lauderdale .................373-4912
Information Systems .....................373-7878
Instructional Labs ......................373-5754
Job Status, ExpEng (recorded message) ...373-4994
Lauderdale Operations ...................373-4920
Lauderdale Services .....................373-7538
Lauderdale Users Room ...................373-4921
MECC Interface ..........................373-4573
Microcomputers .........................376-8806
Microfilm Operator .....................373-4995
Newsletter Subscription ................376-4668
Permanent File Restoration .............376-5605
Professional Services Division (PSD) ...376-1764
Project Assistance .....................376-1764
Program Librarian ......................376-1636
Programming Languages ..................376-7290
Reference Room .........................373-7744
Remote Batch (RJE) Services ............373-5754
Short Courses ..........................376-1637
Shuttle Bus Service ....................376-3068
System Status (recorded message) .......373-4927
Tape Librarian and EBR Operator ........373-4995
Technical Writing ......................373-2522
User Numbers
   Instructional Batch ..................373-2521
   Instructional Timesharing ............373-7745
   Research Batch .......................373-2521
   Research Timesharing .................373-2521
User Services ..........................373-4599

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