PRENTICE COMPUTER CENTRE

UNIVERSITY OF QUEENSLAND, ST. LUCIA, QUEENSLAND, AUSTRALIA. 4067.

NEWSLETTER

N-268   26-October-81

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Authorized by the Director of the Computer Centre

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CONSULTING

PROBLEM AREA	MAIL BOX	NAME AND EXTENSION	

Operations and Programming

PROBLEM AREA	MAIL BOX	NAME AND EXTENSION	
Accounts	ACCOUNTS	Ms C. Walker	2188
Cobol	COBOL	Ms B. King	3020
Database (VG, 1022)	DATABASE	Ms A. Shanahan	3020
Fortran	FORTRAN	Mr R. Armstrong	3020
		Mr J. Currie	2837
Graphics	GRAPHICS	Mr M. Williams	2837
Micros	MICROS	Mr B. Peterson	2926
Network	NETWORK	Mr B. Claire	2926
Operations	OPERATIONS	Senior operator	3212
PDP-11 software	PDP11	Ms N. Meier	3941
		Mr N. Richter	2837
Program Library, Tapes	LIBRARY	Ms L. Roberts	3943
Statistics	STATISTICS	Mr B. Maher	3022
		Mr C. McGovern	2836
System commands and utilities	SYSTEM	Mr R. Morrison	2836
		Mr M. Robbie	2926
Text processing, Typesetting	TEXT	Mr A. Broughton	3022
Non-specific problems	OPERATIONS	Senior operator	3212

Engineering and maintenance

PROBLEM AREA	MAIL BOX	NAME AND EXTENSION	
Development and communications	ENGIN	Mr G. Rees	3288
Mini/Micro support	ENGIN	Mr C. Lythall	3942
Mini and terminal maintenance	MAINT	Ms M. Kenley	3938

Griffith University:

Consulting	(275)	7561
Computer Services		7560

1.0 END OF PUNCHED CARD ERA

Users have been notified in the past of our intention to withdraw support for punched cards. Action was taken last year to reduce the number of card punches. The two machines in the Hawken and Commerce stations will be withdrawn at the end of December.

The operator supported card punching service will be discontinued as from 1 March 1982. We will continue to offer a service for the entry of data on to disk.

Director
extension 2189

2.0 CHANGES TO MOUNT CHARGES

The cost of mounting a private disk is $1.00 for internal users. This cost now only applies to the first user to mount the pack; all subsequent mounts which do NOT involve any physical change of a pack or a disk drive are free. Connect time charges still apply at the normal rate for all jobs.

Di Ball
extension 3471

3.0 EXPIRY DATE ON PROJECT PROGRAMMER NUMBERS

All PPN's will expire on 23 December 1981. To avoid any inconvenience, please complete a 'Change of Expiry Date' form available from the Hawken Batch Station if you wish to renew your PPN for 1982.

Di Ball
extension 3471

4.0 CONSULTING

It is now more than 18 months since our Education Officer, Barry Maher was appointed. The many courses which he have given has resulted, in the last six to twelve months, in a substantial reduction in the demand for free consulting with the duty programmer. Also, due to the proliferation of machines and software it has become more and more likely that the person rostered for consulting may not have the specialist knowledge required to solve a particular problem.

Therefore, from 2nd November, a duty programmer will not be rostered and consulting enquiries should be directed to the appropriate mail box.

It can be appreciated that in current financial circumstances our staff resources are not adequate for all the demands made upon the Centre. We would be grateful if telephone interruptions could be kept to a minimum and maximum use made of the electronic mail service. MAIL boxes have been set up for each of the subject areas and electronic mail should be addressed to the area e.g. 'COBOL' rather than to the person. If the nature of consulting advice required is such that a personal visit is required please make sure that you have thought the problem through and have relevant listings available before seeking an appointment. A problem specification form must be completed for all personal visits.

The following list covers Operations, Software and Hardware enquiries. The MAIL addresses have been set up on both the KL and the VAX.

PROBLEM AREA	MAIL BOX	NAME AND EXTENSION	
Operations and Programming.			
Accounts	ACCOUNTS	Ms C. Walker	2188
Cobol	COBOL	Ms B. King	3020
Database (VG, 1022)	DATABASE	Ms A. Shanahan	3020
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Development and communications	ENGIN	Mr G. Rees	3288
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This list may change from time to time and will be published in every Newsletter. It may also be obtained by typing 'HELP CONSULT'.

Griffith users are invited to use this service as well as making appointments for consulting with programmers who are available at Griffith Batch Station (extension 7561) on Mondays from 1pm to 4pm and Fridays from 9am to 12noon.

The following is a brief example of using MAIL to send a message. User type-in is underlined. Further documentation is available on the KL in the file DOC:MAIL.DOC and on the VAX by typing 'HELP MAIL'.

```
.MAIL<cr>
No mail
Mail command: SEND<cr>
To: LIBRARY<cr>
Subject: PACKAGE<cr>
Text of message (use control-Z when done):
IS PACKAGE ABCXYZ AVAILABLE ON THE KL OR THE VAX?<cr>
^Z
LIBRARY -- sent
Mail command: ^Z
.
```

Allan Woodland
extension 3941

5.0 THE MIDAS SERVICE

The Computer Centre has recently completed the necessary work to provide another useful service to network users. The 'MIDAS' system allows anyone with terminal access to the University's network to connect easily to a number of overseas networks and any one of the hundreds of hosts and services available therein.

MIDAS (Multi-mode International Data Acquisition Service) is a service offered by the Overseas Telecommunications Commission. OTC have a computer in Sydney which is a gateway to overseas networks such as TYMNET and TELENET in the USA. Users in Australia normally make use of MIDAS by dialing a toll-free number and connecting their terminal to MIDAS via an acoustic coupler. However, before using

MIDAS in this way, users would normally establish an account with the OTC and whichever overseas system is of interest. The Central Library, for instance, makes extensive use of MIDAS for its bibliographic retrieval services in this manner.

Currently, MIDAS provides specific access to Lockheed Information Services' DIALOG, and System Development Corporations' ORBIT search and retrieval services. In addition, users have potential access to all hosts on a variety of international networks including TELENET and TYMNET in the USA, DATAPAC in Canada and some networks in the U.K. and Europe. The OTC is actively working to expand the range of information services offered.

To make life easier for our many existing users, we have installed the necessary automatic dial-out equipment and a program called "MIDAS", so that users do not need to worry about establishing an OTC account or acquiring an acoustic coupler and tying of a telephone line. All that remains for the user is to make his own arrangements with the overseas host.

To use MIDAS a user must -

(a) log in to the KL10;

(b) run the program MIDAS;

(c) name the required network e.g. TELENET;

(d) give the required user identification, password etc., required by the destination host;

(e) to terminate the session, type ^V (control-V).

Following .R MIDAS

the program responds with:

ENTER NODE NAME -

The user must enter a valid node or network name or may type HELP to get a current list. The current list at the moment is

        LOCKHEED, SDC, TELENET, NARRABRI

Subsequently, the nominated host or network will ask for further information, such as the TELENET address, user name, password, etc.

Accounting

OTC charges MIDAS users for their service at the rate of $12 per connect hour plus $0.60 per thousand characters sent or received. The program in the KL10 calculates the total OTC cost for each user's

session and automatically charges the user's normal computing account. At the end of the month, the Computer Centre will pay the total OTC account for all users.

Charges from remote host computers are the responsibility of individual users.

At the end of each MIDAS session, that is after the user types a ^V, the MIDAS program types out the accumulated times and costs which will be debited to the users account.

Users should note that the program MIDAS does not pregressively decrement the user's KL10 cost limit as other user programs will normally do, hence there is some risk of overspending. (This is not intentionally done - it is just technically not feasible). The consequence is that users will have to watch the clock as they do when making an STD 'phone call and estimate the cost.

Problems

As implemented at the moment, MIDAS can only be used by one user at a time since there is only one dial-out line. If the line is in use, or there is some other problem when you try to run MIDAS, then a message such as:

"MIDAS line is in use" or

"Telephone call unsuccessful, please try later"

will appear.

To check if there is another users, type

.SYS S

to get a systat list of current KL10 users, and look for 'MIDAS' in the list. If MIDAS is not in the list, ring the Computer Centre's fault reporting number - 3938, and check on its status.

Booking MIDAS

Since MIDAS is a one-at-a-time service we are prepared to accept advance bookings for its use. Users may book a time slot by ringing operations on 2188. When a booking is made then a message to that effect will appear when any subsequent user runs MIDAS, and the message will stay there until shortly after the actual time slot. For example,

        .R MIDAS
        MIDAS HAS BEEN RESERVED BY THE FOLLOWING USERS. WOULD OTHER
        PERSONS PLEASE NOT USE MIDAS AT THESE TIMES:
            BOTANY 27-10-81 4 pm to 5 pm

Any other users who use MIDAS during the reserved times will be detached by the operators upon receipt of a complaint by the person who has made the booking.

If there are no current bookings, there will be no message.

Line Speed

At present, the line speed on the dial-out modem is restricted to 300 bps. This limitation is imposed by TELECOM upon users of its switched telephone lines. OTC anticipate that 1200 bps lines will be available in the near future. Users may still run their terminals at a higher speed, for example 1200 bps, but the average response cannot be greater than 300 bps.

Local Networks

At least one University department is using MIDAS to provide terminal access to a 'local' host, that is a PDP-11 in Narrabri, NSW. This facility was added to the MIDAS program and it simply saves the department from having to use an acoustic coupler.

A common problem is that acoustic couplers do not work at all reliably with telephone lines which go through a local PABX, as is the case with most campus 'phones. One way out is to have TELECOM install a dedicated line, or DATEL service, which bypasses the PABX. However, this is too expensive in cases where less than frequent connections are required. The MIDAS program may be readily adapted to incorporate individual external numbers.

In respect of any queries on MIDAS, users are invited to contact me.

<div style="text-align:center">

John Barker
extension 3016

</div>

6.0 A NEW PROGRAM "PATH"

A new program called PATH has been released with version 7.01 of the monitor. This can replace the old SETSRC program. SETSRC is a utility program which enables you to change your job's search list, to setup a library, and to change your path.

A search list is a list of file structures which are searched automatically when looking for files. For example if your files normally reside on DSKD: and you want to perform a directory of another user's files which reside on DSKG: you would have to specify "DIR DSKG:files.ext[pj,pg]". However if the structure DSKG: were in

your search list you would simply type "DIR files.ext[pj,pg]", which is a great boon if you do this operation often.

A library is a directory which will be scanned when you are looking for files if those files do not exist on your directory. Your directory is searched first for the required file and if it is not there a search is made of the library directory. Combining this function with the search list function allows you to have a library on a completely different structure. If, for example, your library was set to [123,456] and this directory ([123,456]) contains a file called INFO.TXT, and your ppn is [654,321] which does not contain the file INFO.TXT, the command "TYPE INFO.TXT" would type on your terminal the information stored in the file INFO.TXT[123,456]. Obviously this file must have a sufficiently low protection to allow you to read what it contains. It is still owned by the person whose ppn is [123,456] and your access is only as specified by that person.

A path, simply speaking, is a list of directories or subfile directories which will be scanned when looking for a file. This does not have to include your own ppn. For example you can change your path to be [123,456] (when your ppn is [654,321]) and all files operations will be performed on the directory [123,456]. Once again this will not override the standard protection mechanisms.

The PATH program allows all of the functions of the old SETSRC program, but is much easier to use and more versatile. As well as allowing the specification of paths, libraries, and search lists it supports the new locical path name capabilities of the 7.01 monitor. A logical path name is a name which you devise to apply to a specified path. For example, if you do not want the default value of SYS: (which is DSKB:[1,4]) you can redefine SYS: to be "[123,456],DSKB:[1,4]". This means that if you are looking for files on "SYS:" that the directory [123,456] will be be scanned first, followed by the normal SYS: area of DSKB:[1,4] if they do not exist on [123,456].

The PATH program can be accessed either by the ".PATH" monitor command, or by an ".R PATH" command. When using the former the commands to the program are typed on the same line (preceded by a space). With the latter the program will prompt with an asterisk for your commands.

A full description of the PATH program can be obtained by typing ".HELP PATH" on your terminal when logged in.

Below are several examples of using PATH to show some of the things that you can do.

1. Display your current path on the terminal.

```
.PATH<cr>
[654,321]/NOSCAN

.
```

2. Set the default path to be the Sub File Directory "TEXTFL" on your directory, and scan your directory for files not in the SFD. Also automatically search NEW: (DSKB:[1,5]) for programs from SYS:.

    .PATH [654,321,TEXTFL]/SCAN/NEW<cr>
    :

3. Run the program PATH, and add the structures DSKF and DSKE to your search list. Then modify DSKE so that it is a read-only device for your job (you will not be able to create files on DSKE), and list the Job Search List. Finally remove DSKB and DSKF from the search list, and redisplay it. (This example demonstrates the use of several of the switches but otherwise is not very practical).

    .R PATH<cr>

    */ADD:(DSKF,DSKE)<cr>
    */MODIFY:(DSKE:NOWRITE)<cr>
    */LIST:JSL<cr>
    Job search list: DSKD:, DSKB:, DSKF:, DSKE:/NOWRITE, FENCE
    */REMOVE:(DSKB,DSKF)<cr>
    */LIST:JSL<cr>
    Job search list: DSKD:, DSKE:/NOWRITE, FENCE, DSKB:, DSKF:
    */EXIT<cr>
    :

4. Set up a locical path name of LIB to be the directory [123,456] as well as DSKB:[1,5]. This logical "structure" will be searched for files which are not in your directory. This is the replacement function for the old SETSRC library mechanism and is much more functional.

    .PATH LIB:/SEARCH=[123,456],DSKB:[1,5]<cr>
    :

5. Run PATH to set up a logical device called SYS. This will be used instead of the system default (DSKB:[1,4]) for all files from SYS that you wish to access (all standard system programs reside on SYS:). When you access a file on "SYS" the first thing that will be scanned is your directory, and if the files is not there the standard SYS area will be scanned. The "LIST:ALL" switch displays all of the current information stored by PATH.

    .R PATH<cr>
    *SYS:=[654,321],DSKB:[1,4]<cr>
    */LIST:ALL<cr>
    Path: [654,321,TEXTFL]/SCAN/NEW
    Job search list: DSKD:, DSKE:/NOWRITE, FENCE, DSKB:, DSKF:
    System search list: DSKB:
    Logical name definitions:

```
LIB:/SEARCH = DSK:[123,456],DSKB:[1,5]
SYS: = DSK:[654,321],DSKB:[1,4]
*^Z
:
```

PATH will scan your SWITCH.INI file, so you can include a line such as "PATH/LIST:ALL" which will cause all the PATH information to be displayed every time PATH is run. You can also pass information to PATH via the tempcore mechanism, allowing you to enter PATH from a program that you write, or from many of the system programs. This means that you can make changes to your PATH data base when you log in. To do this you add the required commands to your LOGIN line in SWITCH.INI. For example, to set up a library when you log in you could include a line such as:

```
LOGIN/TMP:PTH:"LIB:/SEARCH=[123,456]"/RUNOFF:1/RUN:SYS:PATH
```

This would set your library to be [123,456] automatically every time you log in.

If you have any problems using PATH, do not hesitate to contact the appropriate person by sending mail to SYSTEM. This new MAIL consulting system is discussed in section 3.0 of this newsletter.

Andrew Broughton
extension 3022

7.0 HAS HYPOCHONDRIA STRUCK ATOPLT?

Why does ATOPLT keep visiting the Doctor?

Are they secretly having an affair?

Or is some plot to defraud MEDIBANK being concocted?

The answers to all this - and more - will soon be revealed.

You may know that ATOPLT has the ability to draw a least squares line through your data points. This has been working quite well for cases of only one line. Try to get two lines out of it, and it wouldn't work.

The reason is simple. To get a least squares line, the subroutine ATOLSQ is called. The program code and the manual didn't agree about the ordering of arguments. So the code was changed to agree with the manual. Now ATOPLT correctly produces more than one least squares line.

Read more about the true-life adventures of ATOPLT and friends in the plotting manual, chapter 6. Page 6-11 describes ATOLSQ.

P.S. In the previous episode, the careful reader may have wondered why it was stated that 0.25 equals $25*10**-3$. Obviously, this is not true. It should have been $25*10**-2$. Perhaps the doctor had been drinking at the time (for medicinal purposes only, of course!).

Mark Williams
extension 2837

8.0 1022 AND ALL THAT

The 1022 data base management system is now being extensively applied in a variety of situations. In some cases, the number of records involved is large, and it is appropriate to offer some general suggestions in the direction of efficiency and economy.

(a) Examination of records

Individual, or groups of, records may be written to a file (e.g. for subsequent output to a line-printer) using either

        PRINT ON filename attribute-list or
        DUMP DATA filename (optionally with a DESC clause for
selected attributes)

Of the two alternatives, the DUMP command is the less expensive, as demonstrated by the following results:

Trial A: Data set X contained approx. 2000 records with 12
         attributes
         Using PRINT ON filename ALL   - $4.74
         Using DUMP DATA filename   - $2.02
Trial B: Data set Y contained approx. 50 records with 12
         attributes
         Using PRINT ON filename ALL   - $0.14
         Using DUMP DATA filename   - $0.07

(b) Modifying the data base

(i) The 1022 command DELETE does not "eliminate" the selected records from the data set - it simply ignores them during a search of "live" records. While this is comforting to beginners (since records accidently DELETED may be subsequently restored to "live" status via the DFIND and UNDELETE commands), it may be overlooked that if these

records are genuinely no longer wanted then they should be "properly" removed. This can be achieved only via the DUMP command in the form

DUMP SET filename (optionally with a DESC clause if structure-modification is also required).

The complete removal of these unwanted records (where there is a substantial number of them) serves both to retrieve waste space and to speed up access time during subsequent operations.

(ii) When existing records are being modified or new records added, care should be exercised in the choice of appropriate commands.

- while the CHANGE and ADD commands provide a simple way of modifying the data set, they are not efficient where a large number of records are involved.

- where a number of records are being added, it is more efficient (and therefore less expensive) to use either the APPEND command or the TRANSACT command (using UNAPPLIED APPEND with TRANSACT), rather than the ADD command. (TRANSACT has the added flexibility of allowing both the addition of new records and the modification of existing records).

  Whereas the ADD command causes the updating of key tables after the addition of each single new record, APPEND defers this aspect of the update until all the new records (stored in either a data set or a data file) have been added.

- when the ADD and CHANGE commands are being used, an unkeyed attribute requires less overhead than a keyed attribute. So, where substantial changes (say, >20%) are being made to a data set with these commands, it is advisable to precede these commands with an UNKEY ALL (or UNKEY selected attributes) command, and terminate the updating session with a KEY ALL (or KEY selected attributes) command.

- for massive updates (i.e. updates involving many records and any or all of the commands CHANGE, ADD, DELETE), reductions in overhead can be achieved by the use of the UPDATE ON (and UPDATE OFF), ALLOCATE and SET BUFFER commands.

  Each single update operation activates a sequence of actions:

  1. The data set file is opened for writing

2. Additional disk space, if required, is allocated
3. The record values are updated
4. Key tables are amended for modified key attributes
5. The data set is closed.

The UPDATE ON command results in the data set remaining open until either an UPDATE OFF or QUIT command is issued. Thus, where a sequence of updates is to be performed, unnecessary open/close actions can be avoided.

The ALLOCATE command allows for increased subsequent retrieve efficiency when numerous records are added, without limiting the number of records which may actually be added.

The SET BUFFER command allows the user to alter the number of I/O buffers set up by default; where updating is particularly extensive, efficiency can be increased. The optimum number of buffers is given by the expression $4*(n+1)$ where n is the number of keyed attributes involved in the update session. The default value is 8. (The SET BUFFER command is useful with APPEND also).

[See sections 5.2.1 - 5.2.7 of the system documentation file DOC:NEW114.MEM for full details of these facilities].

Barry Maher
extension 3022

9.0 SPSS CORNER - TO CONVENTION

A problem arises from time to time concerning the use of the very convenient TO convention when specifying variable lists. The problem results from a lack of recognition that the TO convention used within a VARIABLE LIST card (where it is commonly used for the first time by new users of SPSS) differs from its use in all other cards which may contain a variable list in the specification field.

The VARIABLE LIST card is essentially a definition card, whereby the variables are named and an "order of variables" is determined. Thus, when the TO convention is used with this card, it defines a set of variables (including their names) which SPSS then regards as adjacent variables within the ordered-list of variables.

Once the ordered list of variables has been established via the VARIABLE LIST card, this list may be expanded (i.e. it may be added to in lengthwise fashion, but its internal order may not be altered) by the use of COMPUTE and IF cards.

For example, the sequence

```
        .
        .
        .
VARIABLE LIST      A,B,C1 TO C6, V15 TO V17
        .
        .
        .
COMPUTE            X=A+B
   IF              (C1 LE 10)Y=9
COMPUTE            C7=C2+Y
        .
        .
        .
```

establishes the ordered variable list

A,B,C1,C2,C3,C4,C5,C6,V15,V16,V17,X,Y,C7.

A subsequent procedure card such as

FREQUENCIES   GENERAL=C1 TO C7

refers to the expanded ordered list above, and hence frequency tables are generated for the twelve variables C1, C2, C3, C4, C5, C6, V15, V16, V17, X, Y, C7, not just the seven variables C1, C2, C3, C4, C5, C6, C7 i.e. V15, V16, V17, X, Y may be considered "locked into" the sequence of variables in the established list.

In the example above, the resulting over-production might not appear too serious. But, there have been cases where the set of "extra" variables embedded between C1 and C7 in the list has been very large. Similarly, difficulties will arise in, say, a WRITE CASES card, where this misunderstanding does not allow the elements of the format list to correspond, one-to-one in the correct manner, with the elements of the associated variable list.

Barry Maher
extension 3022

10.0 NEW VERSION OF THE EDITOR QEDIT

QEDIT, the program that services the EDIT and CREATE commands, has been updated. In addition to removing a couple of problems, some commands have been improved. SET MAXCOR n which controls the amount of memory used and SET MAXCOR 0 which shows the effect of the current setting are a little more useful. The commands LOCATE and SEARCH with

no string specified now use the last LOCATE or SEARCH string instead of saying "No string specified". <CR> and <ESC> may be used as short forms of NEXT and UP commands, as on the VAX.

Perhaps the most important improvement is the ability to read SWITCH.INI. Any of the SET switches may be set in an EDIT line in SWITCH.INI.

EDIT /LOG:EDIT.LOG/ULCASE/MAXCOR:20/RUN:SYS:RUNOFF/VERB:FIRST

for instance could be used. The editor command HELP or H will tell you what switches are available.

Ian Burgess
extension 2928

11.0 SLOTS SYSTEM RESPONSE AND JOB USAGE

In an effort to improve response time on the SLOTS system, we have been operating with a reduced LOGMAX (maximum logged-in jobs allowed). The operators closely monitor response time and alter LOGMAX accordingly.

The idea behind this is to give students acceptable response at the terminal and reduce the frustration that a heavily loaded system causes. This scheme will only work well if it is not difficult to get a job in the first place. It is counter productive for someone who has a job to retain it by subterfuges, such as running a program that sleeps for long periods. In future, such jobs may be terminated without the customary warning given by NURSE to inactive jobs.

Jobs are currently checked for activity at 5 minute intervals. The frequency will be increased to 2 minutes as occasion demands. On the other hand, no one will harassed if there are plenty of jobs available.

A couple of students suggested that there be a limit of, say, an hour for a terminal job, after which the person would be given a ten minute warning to log out. A vote by a sample class of students was strongly opposed to the idea, so it will not be used at this stage.

Ian Burgess
extension 2928

12.0 <u>INFORMATION CONCERNING COURSES</u>

(a) <u>1981 Courses</u>

The following courses will be offered during November:

1. Introduction to PDP-10   : November 2 - November 3
       2 full days 9-12am + 2-5pm each day

2. Introduction to PDP-10   : November 5 - November 6
       2 full days 9-12am + 2-5pm each day

3. RUNOFF   : November 9 - November 11
       3 full days 9-12am + 2-5pm each day

4. SPSS   : November 16 - November 20
       5 half days 9am - 12.30pm each day

5. VAX Conversion Course   : November 17 - November 18
   (for current PDP-10   2 half days 2-5pm each day
   users only)

6. Elementary FORTRAN   : November 30 - December 4
   Programming   5 full days 9-12am + 2-5pm each day

(b) <u>Early 1982 Courses</u>

Prior to the commencement of the 1982 academic year, the Centre will be offering the courses listed below.

1. Introduction to PDP-10   : January 11 - January 12
       2 full days 9-12am + 2-5pm each day

2. Introduction to PDP-10   : January 14 - January 15
   (GU)   2 full days 9-12am + 2-5pm each day

3. VAX Conversion Course   : January 19
       1 full day 9-12am +2-5pm

4. VAX Conversion Course   : January 21
   (GU)   1 full day 9-12am + 2-5pm

5. SPSS   : January 25 - January 29
       5 half days 9am-12.30pm each day

6. SPSS (GU)   : January 25 - January 29
       5 half days 1.30pm-5pm each day

7. Introduction to PDP-10   : February 2 - February 3
       2 full days 9-12am + 2-5pm each day

8. Introduction to PDP-10   : February 4 - February 5
   (GU)   2 full days 9-12am + 2-5pm each day

9. RUNOFF   : February 8 - February 12
                      5 half days 9-12am each day

10. RUNOFF (GU)   : February 8 - February 12
                      5 half days 2-5pm each day

11. 1022   : February 15 - February 19
                      5 half days 9-12am each day

12. 1022 (GU)   : February 15 - February 19
                      5 half days 2-5pm each day

(c) General Notes

1. The course "Introduction to PDP-10" is intended for new users and those with no previous experience with the DEC-10 system. Users without this experience must attend this course before enrolling in any other course.

2. In general, all courses are held in the Client Room, Hawken Building, St Lucia. The exceptions are those courses designated by (GU) in the above schedule. These courses are for Griffith University users, and will be conducted in the Seminar Room attached to the AES Terminal Laboratory.

3. To ensure sufficient practical experience is obtained, enrolments at all courses are limited. Conversely, where insufficient enrolments are received for any course, the Centre reserves the right to cancel such courses.

4. Staff and post-graduate students are enrolled free of charge. All other users must pay the appropriate fee according to the following schedule:

         Introduction to PDP-10 - $40.00
         1022 - $50.00
         RUNOFF, SPSS - $60.00
         FORTRAN Programming - $100.00
         VAX Conversion Course - $20.00

5. Enrolments may be made by contacting

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                                extension 3022

13.0 SYSTEMS PERFORMANCE

The CSIRO node (70) has been unreliable in the past month due to
2 intermittant faults in the DMC 11 microprogrammed line controllers.

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