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General Purpose Computer Center (GPCC) Survival Guide—Revision 2

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ADMINISTRATIVE INFORMATION

This is Revision 2 of the General Purpose Computer Center (GPCC) Survival Guide. This work has been a collective effort, and the contributors are too numerous to mention. We wish to thank those members of the GPCC and all others who have helped at some point in the evolution of this document.

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PURPOSE

The *Survival Guide* is designed to help users gain access to and use General Purpose Computer Center (GPCC) resources. The GPCC is part of the Computer Sciences and Simulation Division, Code 91, at NOSC. The *Survival Guide* is also intended as a quick reference to answer common questions. You may contact the Computer Resource Center (CRC) during normal working hours for help in answering any questions you may have.

Bayside, Bldg. 204, Ext. 32247/32250
Topside, Bldg. 33, Rm. 2200, Ext. 32268
Electronic mail address: *crc*

Hawaii, Bldg. 1181, Ext. 254-2171
Electronic mail address: *coughran*

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COMPUTERS IN THE GENERAL-PURPOSE COMPUTER CENTER

Figure 1. Computer Resource Center.

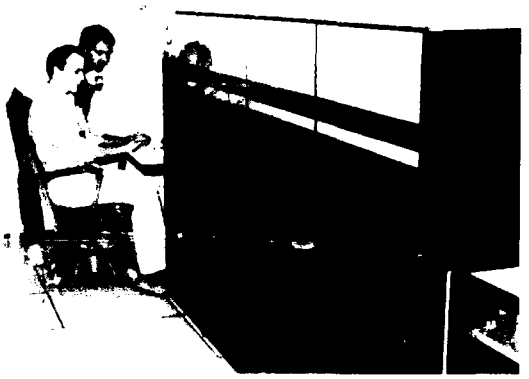


Figure 2. Stingray.

There are a number of computers in the General Purpose Computer Center (GPCC) for general-purpose use. Their names are *cod*, *humu*, *manta*, *marlin*, *stingray*, and *wahoo*. Below are general guidelines for the intended use of these computers. The guidelines were developed to apportion the workloads evenly and according to the computers' respective capabilities. *Cod, humu, manta*, and *marlin* operate under the Unix (4.3 bsd) operating system; *wahoo* uses the DEC operating system VMS (v. 4.7); *stingray* uses the Unix operating system and also has a *covue* shell that interprets many VMS commands.

Cod and *manta* are general-purpose computers for general technical use and for preparing documents such as memos, letters, reports, and manuals. High-level languages such as ADA, C, FORTRAN, and PASCAL may be used on *cod* and *manta*. The Project Management Support System (PMSS) can be accessed from both *cod* and *manta*, and both computers may be used for electronic mail.

Humu is the GPCC computer for NOSC Hawaii users and is used primarily for electronic mail and PMSS.

Marlin is used primarily for electronic mail and PMSS.

Stingray is a minisupercomputer and is restricted to those users with large scientific applications especially suited for a vector architecture. The systems software on *stingray* is UniExt. based, but includes DCL and EDT for users who are more familiar with VMS. *Stingray* currently has ADA, FORTRAN, and C compilers. The scientific packages ABAQUS, DISSPLA, HSPICE, and IMSL are on *stingray*. (The scientific package NASTRAN is on order.)

Wahoo is the only GPCC VMS computer. *Wahoo* runs VMS version 4.7 but is expected to convert to VMS version 5.1 in December 1989. *Wahoo* is an alternative to *manta* for users with number-crunching applications who prefer the VMS operating system. Languages on *wahoo* include ADA, C, COBOL, DATATRIEVE, FORTRAN, and PASCAL.

The DISSPLA plotting package, the IMSL package of statistical and mathematical routines, the UCLA Biomedical Computer Programs (BMDP), and other scientific and business programs are available on *cod, manta,* and *wahoo*. MACSYMA, a general math manipulation language, is also available on *manta*.

Both NROFF and TROFF are available on all the Unix machines; they are powerful Unix text processors that are used to produce formatted documents. INGRES is also on all GPCC Unix computers. INGRES is a relational database management system, which is a set of programs for building and using databases.

WHAT CAN THESE COMPUTERS DO FOR ME?

Electronic Mail (*cod, humu, manta, marlin*, and *wahoo*)

Electronic mail is a free service on all the Unix machines. There is a charge for using the electronic mail utility on *wahoo*. Electronic mail avoids several problems common to the telephone, such as interruptions, no permanent record of messages received, a busy line, or no answer. When you are the recipient of electronic mail, you have several options available to you; you may respond immediately, forward the information to others, save the message(s) for future reference, or print copies on paper. You have time to think and compose your reply. Other useful features are available within electronic mail, including a spelling check feature. The GPCC offers electronic mail courses on the Unix and PC mail programs, and the VMS mail program is briefly covered in the Introduction to VMS course; for more information about these courses, see the "GPCC Course Descriptions" in the Appendix.

Electronic mail also permits communication with people at other Government sites through the MILitary NETwork (MILNET). The MILNET interfaces with the ARPANET, and is a part of the Defense Data Network (DDN).

Project Management Support System (*cod, humu, manta,* and *marlin*)

The Project Management Support System (PMSS) is designed to provide an easy-to-use approach for accessing project information. PMSS currently provides access to an online database containing financial information, stub status, plant property, computer charges, and travel history.

When you become a PMSS user, you will also be given access to the INGRES relational database. INGRES may be used to help you store and retrieve information.

Text and Data File Transferring (Computer Independent)

Electronic mail capabilities may also be used to transfer text and data files from one computer to another computer, whether located at the same site or a different site. Files can be transferred to host computers at remote sites via the MILNET by using the **ftp** command. Such remote transfers make use of the Defense Data Network (DDN). Files can also be transferred to and from your microcomputer with the PC **terminal** program and the Unix **mcp** command.

Scientific Computations (*cod, manta, stingray*, and *wahoo*)

Scientific computations often involve manipulation of large quantities of data or the extensive use of special programs. Many of these programs are developed at NOSC. Several computer languages are available, from which programmers may select the one most suited to a particular problem. The programming languages include ADA, C, FORTRAN (both Unix F77 and FORT - a Unix adaptation of the VMS FORTRAN), PASCAL, MODULA II, LISP, and PROLOG.

Some programs developed at other computer sites can be transferred here and executed on NOSC computers. Several special software libraries for scientific users are available. For example, IMSL, DISSPLA, and BMDP, nationally known software packages, are available on *cod, manta*, and *wahoo*. IMSL aids in scientific computations, DISSPLA displays data graphically, and BMDP is a statistical package.

NOSC researchers who have programs that would benefit from vectorization may wish to get an account on *stingray*, the GPCC vector-processing minisupercomputer. Prospective users will be screened to ensure that their work is compute-intensive and appropriate for *stingray*. Although *stingray* is a Unix machine, it has a *covue* shell that interprets many VMS commands. ADA, FORTRAN, and C compilers are installed on *stingray*. In addition, *stingray* currently has the scientific packages ABAQUS, DISSPLA, HSPICE, and IMSL. (NASTRAN is on order.)

THE GENERALIZED COMMUNICATIONS BACKBONE

The Generalized Communications Backbone (GCB) uses standard cable television technology. The GCB is a campus-based broadband communications network providing for an architecture of ethernets, terminal interface units, and PC-based networks. These services provide the links to most of the computers and terminals at NOSC through small transmitter-receiver units called T-boxes. This interconnectivity forms NOSC's complex hybrid communications network.

Most of NOSC's buildings and tenant facilities have been connected via the GCB. This allows connectivity access to any of the GPCC computers from most locations at NOSC. DDN access is available from the terminal servers via one of the several GPCC computers, and **ftp** or Telnet services are also available. The NOSC GCB is operated and maintained by the Computer Technology Branch, Code 913.

GETTING STARTED

To use a GPCC computer, you will need to become a registered user. To get an account, you will need to take the following steps:

1. First you will need to contact the Computer Resource Center (CRC):

   Bayside, Bldg. 204, Ext. 32247/32250
   Topside, Bldg. 33, Rm. 2200, Ext. 32268
   Electronic mail address: *crc*

   Hawaii, Bldg. 1181, Ext. 254-2171
   Electronic mail address: *coughran*

2. The consultant will ask you some questions about your requirements, your computer background, and the equipment you are using or may need.

3. The consultant will then give you a start-up packet, which will include a computer authorization form. The consultant will answer any questions you may have and assist you in completing this form.

4. After you complete the form and obtain the appropriate authorizing signatures, return the form to the CRC. The CRC will contact you when your temporary password has been established.

WHAT KIND OF SUPPORT SERVICES ARE AVAILABLE?

The Computer Resource Center

The GPCC has a staff of consultants working in the Computer Resource Center (CRC) Bayside, Topside, and Hawaii. A consultant is available during NOSC normal working hours every working day. The consultants will answer any question you may have pertaining to the GPCC, including questions on policies, computer usage, and technical details on the Unix, VMS, and MS-DOS operating systems. If the consultants are unable to answer your question immediately, they will contact someone who will return your call promptly. The consultants are available on a walk-in basis, by phone, or by electronic mail. We especially encourage new users to become familiar with this service by contacting the CRC for help with any questions.

The CRC also helps NOSC employees acquire and use microcomputer hardware and software. The CRC provides information and assistance in the selection, acquisition, installation, configuration, operation, and repair of microcomputer hardware and software. If you have ANY problems with your PC, you can call the CRC; they will help you determine whether the problem is hardware, and if so, they will contact the appropriate maintenance people. Product brochures, equipment specifications, and model procurement packages are available for review. The CRC has two showrooms of sample hardware and software packages for demonstration and hands-on evaluation. The CRC distributes ADP consumables including floppies, cables, and software, which are also available from Shop Stores #4.

The CRC also offers a service called Applications Development (AD). Consultants are available to customize applications you use, including dBase and Lotus, so the applications will satisfy your specific requirements. A free consultation session can be arranged to discuss your needs and obtain a cost estimate. The CRC consultants may be reached at the following locations:

Bayside, Bldg. 204, Ext. 32247/32250
Topside, Bldg. 33, Rm. 2200, Ext. 32268
Electronic mail address: *crc*

Hawaii, Bldg, 1181, Ext. 254-2171
Electronic mail address: *coughran*

User Documentation

A variety of documentation is available to assist you in using the NOSC computers. The Topside and Bayside Technical Libraries have manuals ranging in levels of complexity from beginning to advanced. They can be reached at the following locations:

Topside Technical Library, Bldg. A19A, Ext. 34893
Bayside Technical Library, Bldg. 150, Ext. 34908
Electronic mail address: *documents, toplib*, or *baylib*

Documents, such as this one, and reference cards are available; many of the documents listed below are also available through the CRC. Some helpful documents for the beginner include the following:

Electronic Mail Survival Guide
GCB Sign-On Card
Introduction to the Defense Data Network
Introduction to NOSC Electronic Mail
Introduction to WordStar
Micro-Mail User's Guide
NOSC UNIX Local
NOSC UNIX Reference Card
NOSC Unix User's Guide
Personal Computer Owner's Manual
RED a Primer for the Rand Editor at NOSC
Understanding dBase III Plus
Unix Primer Plus
Using 1-2-3
Vi Quick Reference Card

A monthly publication, the *NOSC Computing Highlights*, is published and distributed by the GPCC. It contains articles of interest about the GPCC and computers in general. Topics range from nontechnical to complex, technical issues. The *Highlights* also covers strategies in usage, helpful hints, computer-related topics, and a 3-month schedule of training courses being offered. NOSC employees may request to be put on the mailing list for the *Highlights* by calling Ext. 32265 or sending email to *highlights*.

Online documentation for Unix commands is available. See the section on "Online Help (Unix)." Online help for VMS commands is also available. See the section on "Online Help (VMS)."

Training

Training is available through the GPCC Training Office. The GPCC Training Office is open to all inquiries regarding user training.

> Ext. 32245/32264
> Electronic mail address: *gpcctrain*

The following services are available:

> FORMAL CLASSROOM. Classes related to the use of computers at NOSC are held in the Computer Classroom, Bayside, Bldg. 173. The classroom has 12 Zenith Z248 computers, with one PC per student. There is also a video projector in the classroom that allows the instructor's PC to be displayed as a learning aid. The dates of class sessions are announced in the *NOSC Computing Highlights*. Some of the courses are for beginners and do not require prior computer experience or knowledge. Other courses have prerequisites. The *GPCC Orientation* course is designed to introduce students to the equipment and services provided by the GPCC. There is no

charge for this course. There is a fee for the other courses. Class sessions are generally 3 or 6 hours in length. Only enrolled students may attend. The Appendix contains descriptions of the GPCC courses.

To enroll in a class, a signed authorization memo or email from the employee's supervisor is required. The memo should state the name (including middle initial), code and phone of the employee authorized to attend; whether the employee is military or civil service; the name of the GPCC course; the date, time, and place of the course; whether the prerequisite has been met; and a valid job order or account number to charge against. Send the memo to the GPCC Training Office, Code 912 (email: *gpcctrain*).

OPEN LABS. On Wednesday afternoons, the classroom (Bayside, Bldg. 173) is open by appointment between 1300 and 1600 for self-paced learning. Employees can take advantage of WordPerfect, WordStar, Lotus, and dBASE III Plus tutorials. A typing tutorial is also available. The lab provides an opportunity for those who have taken classes to come in and practice what they have learned, but all NOSC employees are welcome. An instructor will be present to help employees get started and answer questions. If you wish to make an appointment, call Ext. 32265/32264. The open lab service is FREE.

In addition to the training offered through the GPCC, video-cassette courses are available through Code 9622, Bayside, Bldg. 128, Rm. 107, Ext. 34864. See the Appendix for a list of some of the video courses available.

Figure 3. Computer Classroom.

SOME HELPFUL PROCEDURES

Logging In (Unix)

1. Turn on your terminal or PC. PC users must make sure that the **terminal** program is installed on the PC before proceeding. You will need to have the **terminal** program configured for either an h19 or a vt100, depending on what type of PC you have. The **terminal** program is available from the CRC, and they will properly configure it for you. If you have a PC and the **terminal** program is installed, enter **terminal** at the DOS prompt (e.g., C> **terminal**) and press [RETURN]. If you are using a terminal, you may skip this step.

2. You will see a small blinking light on your screen. That light is called the "cursor." It acts as a placeholder on the screen to show you where you are. The cursor indicates where the next character will appear when you press a key.

3. Press the [RETURN] key on your keyboard until you see the pound sign (#), which is the T-box prompt. It will look like this:

```
#
```

4. The prompt tells you that the T-box is ready to accept an instruction or command. Type the letters **lo** and press the [SPACE BAR]. The rest of the word "location" will be displayed (**lo**CATION), plus a required space. Select the correct location number of the computer you want to use from the small GCB card on your terminal. Figure 4 is a sample GCB card. If you have an account on *marlin*, for example, you should type in the number **3**, and press the [RETURN] key (for *cod*, the number is **9**; for *humu*, it is **9**; and for *manta*, it is **11**).

```
# loCATION 3
```

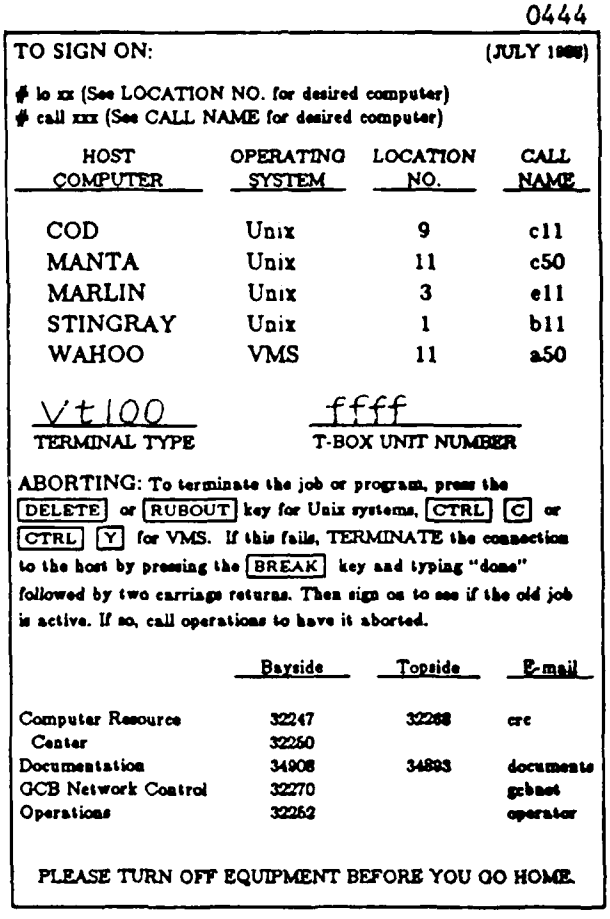
5. Another pound sign will appear under the first pound sign. Type **ca** and press the [SPACE BAR]. The rest of the word "call" will be displayed (**ca**LL), plus a required space. Again, refer to the small GCB card on the terminal and type in the correct call number associated with the computer you're calling, then press [RETURN]. Using our example on *marlin*, you would enter **e11** (for *cod* enter **c11**; for *humu* enter **100**; and for *manta* enter **c50**).

```
# loCATION 3
# caLL e11
```

6. A message indicating that your call to the host computer has been completed will be displayed on the screen. The next step is for you to enter your *userid* on the "login:" line.

```
CALL COMPLETED TO 0E19,1

4.3 BSD UNIX (marlin.nosc.mil) (ttyj3)
login:
```



0444

TO SIGN ON: (JULY 1988)

lo xx (See LOCATION NO. for desired computer)
call xxx (See CALL NAME for desired computer)

HOST COMPUTER	OPERATING SYSTEM	LOCATION NO.	CALL NAME
COD	Unix	9	c11
MANTA	Unix	11	c50
MARLIN	Unix	3	e11
STINGRAY	Unix	1	b11
WAHOO	VMS	11	a50

Vt100 — TERMINAL TYPE

ffff — T-BOX UNIT NUMBER

ABORTING: To terminate the job or program, press the DELETE or RUBOUT key for Unix systems, CTRL C or CTRL Y for VMS. If this fails, TERMINATE the connection to the host by pressing the BREAK key and typing "done" followed by two carriage returns. Then sign on to see if the old job is active. If so, call operations to have it aborted.

	Bayside	Topside	E-mail
Computer Resource Center	32247 32250	32268	crc
Documentation	34908	34893	documents
GCB Network Control	32270		gcbnet
Operations	32252		operator

PLEASE TURN OFF EQUIPMENT BEFORE YOU GO HOME.

Figure 4. Sample GCB card.

If you get a message such as "Unable to open session" or "No sessions available" instead of "Call completed," repeat step 5. You do not need to repeat typing in the location. If you still do not get the "Call completed" message, either the ports on the computer are busy or the computer is down. Try again later.

7. You should then type in your userid in lowercase letters only, and press the RETURN key.

```
login: jsmith
```

8. Next the computer will ask for your password.

```
Password:
```

9. Type in your password, and press RETURN.

NOTE: To maintain the security of your account when you enter your password, the characters you type will not appear on the screen. If the computer gives you the message "Login incorrect," it will return you to the "login:" prompt. This usually means that you entered your *userid* or password incorrectly. Enter both your *userid* and password again. If you are still getting "Login incorrect" after several attempts, contact the Computer Resource Center, Bayside Ext. 32250, or Topside Ext. 32268.

10. If you have a *userid* and a password, you will also have an account (representing a job order number) assigned to you for tracking computer usage charges. It is possible for you to have more than one account assigned to you. If you have only one account, it will not be displayed when you log in, so you may go to step **11**. Otherwise, read on.

If you have several accounts, the computer will ask you to enter the account you wish to charge against for that login session. You should type in the account you wish to use and press the [RETURN] key. For example:

```
Account: aab
```

There is a way to assign the account that you use the most frequently as the default account, so that you only need specify the account when it is a different one than the default. For information on how to set up a default, call the CRC, Bayside, Ext. 32250 or Topside, Ext. 32268. If you have set up a default account and wish to charge against it, simply press the [RETURN] key. If you wish to use another account, then type it in and press the [RETURN] key.

```
Account (aaa): aab
```

11. Next, various information, including the last time you logged in, will be displayed on the screen. If electronic mail messages have arrived since the last time you logged in, the message "You have new mail." will be displayed. If you are logging in for the very first time, you will see a message that your password must be changed. The system will then help you to select your permanent password. See "Changing Your Password," on the next page, for more information.

12. Next you will see "TERM = (vt100)." If your terminal type is a vt100, simply press the [RETURN] key. If you have another terminal type (your GCB card should have the correct terminal type written on it), then type it in and press [RETURN].

```
TERM = (vt100) h19
```

13. The system can be instructed to remember your terminal type so you will not need to change it. For more information, call the Computer Resource Center, Bayside Ext. 32250 or Topside Ext. 32268 (electronic mail address: *crc*).

14. Next you will see the time, the number of users on the computer, and other information. On the next line, the percent sign (%) is displayed. The percent sign tells you that you are in the Unix operating system and you may begin entering Unix commands.

Changing Your Password (Unix)

1. If you are logging in for the first time, the password you used is temporary, and you need to change it before you log out. A password is a code that must be entered directly after your *userid*. After you have typed in your temporary password, you will see a message like this:

> Your password is the same as the one you were given originally. It must be changed or it will become invalid TONIGHT!! Changing password for jsmith (*your userid will appear here*)
>
> Old password:

2. Type in the password you used to log in, and press [RETURN]. Next the system will give you a list of 10 passwords numbered from 0 through 9 with the message:

> Select one of above passwords by number or n for none.
> #

3. Enter the number of the password you like and press the [RETURN] key. If you don't like any, type n and [RETURN]—you will be given 10 more passwords from which you may choose. After you make your selection, the system will ask you to type the new password to verify that it is correct. It will look something like this:

> Your new password is "*password*" - REMEMBER IT!
>
> Retype new password:

4. For security reasons, you **must** memorize your password. Keep it secret and do not share it with others. Since it is necessary to protect your password, it is not permissible to program function keys on your terminal or PC to enter your password.

5. If you have several computer accounts (e.g., if you are on *cod, humu, manta*, or *marlin*) you need to set up a permanent password on the other computers as well. You may use the same password for all the Unix GPCC computers you are on by using the command **samepw**, followed by each computer name with the names separated with a space. Using our example of first logging in on *marlin*, the command to change your passwords on *cod* and *manta* to be the same as your *marlin* password is as follows:

```
% samepw cod manta
```

Next the computer will ask you for your password. When you enter your password, it will not be displayed on the screen, so type carefully.

```
Password:
```

Type in your password, and press [RETURN]. The system will then display each computer you named in the **samepw** command, in the order you named it. Then you will be returned to the Unix % prompt. Using our example, it would look like this:

```
Password: Enter password here. It will not be shown.
cod . . .
manta . . .
%
```

In this example, you would be able to log into *cod* and *manta* immediately after using the **samepw** command.

6. If you decide that you do not like your password or you feel it has been compromised in some way, you are free to change it. The command to do this is **passwd**. Simply enter it after the Unix % prompt:

```
% passwd
```

7. After you enter the **passwd** command, the system will prompt you to enter your old password, which will take you through steps 1 through 3 as explained above. If you have accounts on more than one computer, the **passwd** command will not automatically change your password on all computers. You must use the **samepw** command as explained in step 5 above.

Logging Out (Unix)

1. When you are finished using the computer, you must log out before you turn off your terminal or microcomputer. To log out, at the Unix % prompt type logout and press the [RETURN] key. The system will display something like this:

```
% logout
SESSION 1 CLOSED TO 0E19,1
#
```

2. You may also use a shortcut by typing in a period and pressing the [RETURN] key as follows:

```
% .
SESSION 1 CLOSED TO 0E19,1
#
```

3. The "SESSION CLOSED" tells you that your logout was successful. If you have tried either method to log out and the session does not close, try again. After a few unsuccessful attempts, PC users should press the [CTRL] key and the [BREAK] key simultaneously. You should see a pound sign (#). Then type **done** and press the [RETURN] key twice. Be sure you get a message that tells you the session is closed. If not, call the CRC, Bayside Ext. 32250 or Topside Ext. 32268. Then press the [F10] key to return to the PC prompt. (Users with terminals need only press the [BREAK] key, type **done**, and press the [RETURN] key twice.)

Online Help (Unix)

The GPCC computers at NOSC feature an online help facility which can be very helpful in answering your questions about the system. Two commands that provide information regarding Unix commands are **man** and **learn**.

The manual page (**man**) followed by the name of a Unix command displays the *Unix Programmer's Manual* documentation for that command. For example, to display the manual page for **samepw**, enter this command:

```
% man samepw
```

learn is an online tutorial. There are lessons on files, editors, macros, and the C language. To use **learn**, type the following:

```
% learn
```

Instructions are given on how to choose a particular lesson, how to proceed with the tutorial, and how to exit **learn**. To exit **learn** type **bye**.

Logging In (VMS)

1. Turn on your terminal or PC. PC users must make sure that the **terminal** program is installed on the PC before proceeding. You will need to have the **terminal** program configured for either an h19 or a vt100, depending on what type of PC you have. The **terminal** program is available from the CRC, and they will properly configure it for you. If you have a PC and the **terminal** program is installed, enter **terminal** at the DOS prompt (e.g., C> **terminal**) and press [RETURN]. If you are using a terminal you may skip this step.

2. You will see a small blinking light on your screen. That light is called the "cursor." It acts as a placeholder on the screen to show you where you are. The cursor indicates where the next character will appear when you press a key.

3. Press the [RETURN] key on your terminal keyboard until you see the pound sign (#), which is the T-box prompt. It will look like this:

```
#
```

4. The prompt tells you that the T-box is ready to accept an instruction or command. Type the letters **lo** and press the [SPACE BAR]. The rest of the word "location" will be displayed (loCATION), plus a required space. Select the correct location number of the computer you want to use from the small GCB card on your terminal. If you have an account on *wahoo*, for example, you should type in the number **11**, and press the [RETURN] key.

```
# loCATION 11
```

5. Another pound sign will appear under the first pound sign. Type **ca** and press the [SPACE BAR]. The rest of the word "call" will be displayed (caLL), plus a required space. Again refer to the small GCB card on the terminal and type in the correct call number associated with the computer you're calling, then press [RETURN]. Using our example on *wahoo*, you would enter **a50**.

```
# loCATION 11
# caLL a50
```

6. A message indicating that your call to the host computer has been completed will be displayed on the screen.

```
CALL COMPLETED TO 0A50,1
```

Then press the [RETURN] key. The next step is for you to enter your *userid* on the "login:" line.

```
WAHOO VAX/VMS V4.7
Username:
```

7. You should then type in your *userid* and press the [RETURN] key.

```
Username: jsmith
```

8. Next the computer will ask for your password.

```
Password:
```

9. Type in your password, and press [RETURN].

NOTE: To maintain the security of your account when you enter your password, the characters you type will not appear on the screen. If the computer gives you the message "User authorization failure," it will return you to the "Username:" prompt. This message usually means that you entered your *userid* or password incorrectly. You should repeat steps 7 and 8. If you are still getting "User authorization failure" after several attempts, contact the Computer Resource Center, Bayside Ext. 32250, or Topside Ext. 32268.

10. Next, various information, including the last time you logged in, will be displayed on the screen. If electronic mail messages have arrived since the last time you logged in, the message "You have new mail." will be displayed. (If you are logging in for the very first time, you will see a message that your password must be changed. The system will then help you to select your permanent password. See "Changing Your Password," on the following page, for more information.)

11. Next you will see "TERM TYPE (VT100) ?:." If your terminal type is a vt100, simply press the [RETURN] key. If you have another terminal type (your GCB card should have the correct terminal type written on it), then type it in and press [RETURN].

```
TERM TYPE (VT100)?: h19
```

12. The system can be instructed to remember your terminal type so you will not need to change it. For more information, call the Computer Resource Center, Bayside Ext. 32250 or Topside Ext. 32268 (electronic mail address: *crc*).

13. On the next line, the dollar sign ($) is displayed. The dollar sign tells you that you are in the VMS operating system and you may begin entering VMS commands.

Changing Your Password (VMS)

1. If you are logging in for the first time, the password you used is temporary, and you need to change it before you log out. A password is a code that must be entered directly after your *userid*. After you have typed in your temporary password, you will see a message like this:

> WARNING - Your password has expired; update immediately with SET PASSWORD!

2. The local command, **new password**, offers a selection of friendlier passwords than the standard VMS command, **set password**. Use the command **new password** to update your password as follows:

> % **new password**

3. You will be prompted for your old password and then given a new list of choices to choose from. Enter your old password and hit the [RETURN] key:

> Enter your current password: *password*

4. You will next be told to choose a password from the given list or to press [RETURN] to get a new list. Enter in the new password name when prompted, and press the [RETURN] key. Then re-enter the new password for verification and press [RETURN] again:

> Enter one of the above passwords or return for another list: *newpasswd*
>
> Reenter for verification: *newpasswd*

5. For security reasons, you **must** memorize your password. You must keep it secret and not share it with others. Since it is necessary to protect your password, it is also not permissible to program function keys on your terminal or PC to enter your password.

6. If you decide that you do not like your password or you feel it has been compromised in some way, you are free to change it. You may change it at any time with the **new password** command, as mentioned above in steps 2 through 4.

Logging Out (VMS)

1. When you are finished using the computer, you must log out before you turn off your terminal or microcomputer. To log out, at the VMS $ prompt type **logout** and press the [RETURN] key. The system will display something like this:

```
$ logout
SESSION 1 CLOSED TO 0A50,1
#
```

2. You may also use a shortcut by typing **lo** and pressing the [RETURN] key as follows:

```
$ lo
SESSION 1 CLOSED TO 0A50,1
#
```

3. The "SESSION CLOSED" tells you that your logout was successful. If you have tried either method to log out and the session does not close, try again. After a few unsuccessful attempts, PC users should press the [CTRL] key and the [BREAK] key simultaneously. You should see a pound sign (#). Then type **done**, and press the [RETURN] key twice. Be sure you get a message that tells you the session is closed. If not, call the Computer Resource Center, Bayside Ext. 32250 or Topside Ext. 32268. Then press the [F10] key to return to the PC prompt. (Users with terminals need only press the [BREAK] key, type done, and press the [RETURN] key twice.)

Online Help (VMS)

The *help* facility on *wahoo* gives information about the Digital Command Language (DCL) commands available on the system. You can find out the format and use of every DCL command, as well as the parameters and qualifiers for each, by typing **help** at the $ prompt as follows:

```
$ help
```

The help facility displays a list of topics for which information is available, and you may obtain information on the topic by typing in the topic at the *topic* prompt. The system will further prompt you with the *subtopic* prompt, if there is further information available under the chosen topic.

You may also directly request help for a particular command without first entering the *help* facility, if you know which command you would like help on. For help on the command **logout**, you would type the following:

```
$ help logout
```

Wahoo also has two online tutorials, **vmscai** and **edtcai**. For computer-aided instructions on basic VMS commands, type **vmscai** at the VMS $ prompt. If you wish to learn more about the EDT editor, you may type **edtcai** at the $ prompt.

NOSC ELECTRONIC MAIL

Electronic Mail (email) is a process for sending and receiving messages by computer 24 hours a day. You can read your mail and send messages at your convenience. You can access your messages at any time from many locations. Copies of letters, memos, and other files can be sent easily without the necessity of moving a physical document from one location to another. Proofreading time can be reduced by using the spelling-check feature. Email is a free service on all GPCC Unix machines; the Micro-Mail program (PC mail) is also free. There is a charge, however, for using email on the VMS computer, *wahoo*.

If you do most of your computing work on a GPCC Unix computer, you may wish to use the Unix mail program, **msg**. If you use email extensively or send lengthy messages, you will want to learn a Unix editor such as vi or RED. It is not necessary, however, to know an editor to use **msg**.

The VMS computer, *wahoo*, also has a mail utility, but there is a charge for using email on *wahoo*. You do not need to know a VMS editor to send mail but have the option of using a VMS editor such as EDT.

Micro-Mail (**umail**) is an electronic mail utility that performs the same basic tasks under MS-DOS that **msg** does under Unix. That is, it checks for pending mail, transmits and forwards mail, deletes messages, etc. Micro-Mail users can transmit and receive email on their PCs without having to log onto a mini or mainframe computer overtly. PC users who would prefer to confine all of their computing to their PC should use Micro-Mail. At this time, there is no Micro-Mail for the Macintosh. You must have a valid *userid* and password on a minicomputer to use Micro-Mail. You will also need a PC and the Micro-Mail software. Contact the CRC for a list of valid mailhome minicomputers and further details. The free Micro-Mail software is available from the CRC.

Micro-Mail users can use their favorite PC wordprocessor (e.g., WordPerfect or WordStar) to compose messages. If you do not use a PC wordprocessor, the Easy Editor will be used as the default and will be called up each time you wish to compose a message. For help in learning this simple editor, you may press the **F1** key while in the Easy Editor.

GETTING IN AND OUT OF NOSC ELECTRONIC MAIL (UNIX)

1. After signing on, you can enter the mail program by typing **msg** after the Unix % prompt and pressing [RETURN]:

```
% msg
```

2. There are three levels of use in the **msg** program. They are tutorial, intermediate and experienced. Tutorial and intermediate levels will provide you with a menu of selections from which to choose. At the experienced level, options are not shown on the screen. You may access the options by entering a question mark ? or an i at the **msg** prompt. New users are installed at the intermediate level of **msg**.

3. For information on any of the options in the menu, enter a question mark, followed by the command you want to know about. For example:

```
ENTER COMMAND: ? header.
```

The best way to understand the function of a command is to try it.

4. To read your mail, press the [RETURN] key to see the next message.

5. To leave the electronic mail program, use the quit command **q** at the "ENTER COMMAND:" prompt. This will return you to the Unix % prompt.

Two courses, *Introduction to NOSC Electronic Mail* and *More on NOSC Electronic Mail* are offered by the GPCC. For more information, see the course descriptions in the Appendix.

Documentation is also available. See the section on "User Documentation" regarding the *Introduction to NOSC Electronic Mail* and *Electronic Mail Survival Guide* documents.

GETTING IN AND OUT OF NOSC ELECTRONIC MAIL (VMS)

1. After signing onto *wahoo*, you can enter the **mail** program by typing **mail** after the VMS $ prompt and pressing [RETURN]:

    $ mail

2. For information on the various mail commands, type **help** and press [RETURN]:

    msg> **help**

In particular, you may wish to read the "Getting_Started" section, which explains the most basic mail commands. Type the following:

    msg> **Getting_Started**

If the screen scrolls and you can't read the text, press [CTRL] **s** to stop the scrolling and then press [CTRL] **q** to scroll to the next page, etc.

Press the [RETURN] key until you are back to the msg> prompt.

3. Like the Unix mail program, you may continue pressing [RETURN] to read each new message. To see a list of all messages in your mail folder, type **dir** at the msg> prompt.

4. In the VMS mail program, three default folders are created: *newmail, mail*, and *wastebasket*. To get a listing of your existing folders, type **dir/folders**. To move to a different folder type **select** *foldername*.

5. To leave the VMS mail program, type **quit** at the **mail** prompt and press [RETURN]. You will be returned to the VMS $ prompt.

Students will spend some time learning about the VMS mail utility in the GPCC course, *Introduction to VMS*. See the course descriptions in the Appendix for further information.

Documentation is also available. See the section on "User Documentation" regarding the *Introduction to NOSC Electronic Mail* and *Electronic Mail Survival Guide* documents.

GETTING IN AND OUT OF MICRO-MAIL (PC)

1. You can enter the Micro-Mail program by typing **umail** at the MS-DOS C:> prompt and pressing [RETURN]:

C:> **umail**

2. **umail** provides a commands menu that makes up the top two lines of the screen, as well as a headers menu. The commands menu lists all of the Micro-Mail commands. Each command can be executed by typing in lower-case the upper-case letter that appears within the command name. For example, to execute the **Send** command, type **s**. To execute the **eXit** command, type **x**. Do not press the [RETURN] key. The best way to understand the commands is to try them.

3. The headers menu contains headers for all messages in your mailbox. The first time you enter **umail**, you will have no messages in your mailbox. If you have any new messages, you can download them onto the PC with the **Get** (**g**) command.

4. Like **msg**, **umail** has a **help** command. Type **?** for help. Each command is briefly described. Some of the keypad keys have special functions in **umail**. The up and down arrows can be used to move the highlight from one message to another. Some of these keys are described in **help**.

5. You may also execute MS-DOS commands (like **dir** or **type**) while you are still in **umail** by typing **!command** and then [RETURN]. For example, type **!dir** [RETURN] to get a directory listing.

6. To leave **umail**, use the **Quit** (**q**) command. Type **q** and this will return you to the MS-DOS C:> prompt.

An *Introduction to Micro-Mail* course is offered by the GPCC. See the course descriptions in the Appendix for further information.

Refer to the section on "User Documentation" for information on obtaining the *Micro-Mail User's Guide*.

GETTING IN AND OUT OF PMSS

The Project Management Support System (PMSS) provides software, hardware, a users' group, and documentation. The software is designed to provide NOSC project managers and support personnel with an easy-to-use approach to accessing project information electronically. The objective of PMSS is to assist you in doing your job in a more cost-effective and timely manner.

1. To use PMSS, you will need an account on *marlin*. PMSS can also be accessed from *cod, humu*, and *manta*, although you must have an account on *marlin*. See "Getting Started" in this brochure. The most frequently used part of PMSS is financial data. PMSS allows you to use financial data available at NOSC by computer. To prevent unauthorized use of financial data, access is controlled. You must have authorization to access PMSS financial data. When you register as a new user, you may request PMSS financial data access. If you are already a computer user, contact the PMSS Access Administrator or the CRC:

PMSS Access Administrator Ext. 32293 Electronic mail address: *pmssaccess*	Computer Resource Center Ext. 32250, Bayside Ext. 32268, Topside 254-2171, Hawaii Email address: *crc*

2. PMSS was developed to support both the novice and the more experienced computer user. PMSS guides each user with a series of choices, or menus. You enter PMSS by *typing* **pmss** after the Unix % prompt, and then pressing [RETURN].

```
% pmss
```

3. There is a list of options on the menu. Based on your selection, you may see your present menu replaced by another menu, or you may be asked for specific information, such as a job order number. You can select online help or exit PMSS from every menu. To ask for help, enter **help** or **h** at the "Select option:" line, then press [RETURN]:

```
Select option: h
```

You can also get help on PMSS by typing **man pmss** at the "Select option:" prompt from within PMSS.

4. To exit PMSS, simply enter **q** or **quit** at the "Select option:" prompt, then press [RETURN].

```
Select option: q
```

5. PMSS will then return you to the Unix % prompt.

WHAT IS IT GOING TO COST ME?

Our policy is to charge for the following resources used.

> Connect time: The amount of time your terminal (or personal computer) is connected to one of our computers.
>
> CPU time: The amount of time you use the Central Processing Unit.
>
> Disc Storage: The amount of space used for storing data.
>
> Documentation, training, printers, and plotters.

Development of the rates is aimed at recouping costs incurred and no more. The cost of each resource item is used in the calculation of the rates for that item. The rates are published in memorandum form prior to the fiscal year in which they will be effective. The rates are set at the beginning of each fiscal year, after they have been approved. Electronic mail is free on all GPCC Unix computers.

You can display the current rates for the computer you are using by entering **cost** followed by RETURN at the Unix % prompt. For example, to display the computer rates on *cod*, enter:

> **% cost**
>
> The following information is displayed:
>
> Computer rates for the cod are as follows:
>
Connect time	$3.42000	per hour
CPU time	$0.41400	per second
Disc storage	$0.60000	per k-blocks/day (a block = 512 bytes)
Tape storage	$0.20000	per tape/week
Print output	$0.02800	per page

The computer rates for each machine are identical except for the CPU time rates, which vary from host to host depending on the size of the CPU on that machine. Use the **cost** command to find the CPU time cost on the current host.

COURSE DESCRIPTIONS

PC Courses

1. Introduction to PCs

This one-session, 3-hour class familiarizes beginning students with the basic concepts of personal computers (PCs), including basic disk operating system (DOS) version 3.2 commands, file concepts, handling of floppy disks, and general working concepts used with PCs. There are no prerequisites. The personal computers in the classroom are Zenith Z248s.

2. Introduction to WordPerfect

This two-session, 6-hour course covers the fundamentals of the WordPerfect 4.2 word processing program used on personal computers (PCs). WordPerfect may be used to prepare memos, letters, and documents. The topics covered will include creating a WordPerfect file, using basic cursor movements, paging through a file, inserting and deleting text, and using the help feature. Additional topics include using the reveal codes within the text, using and defining tabs and margins, and centering. *Introduction to PCs* or the equivalent experience is a prerequisite for this course.

3. Introduction to WordStar

This two-session, 6-hour course covers the fundamentals of the WordStar Professional Release 4.0 word processing program used on PCs. (The course does not cover WordStar 2000.) WordStar can be used to prepare memos, letters, and documents. The topics covered include creating a WordStar file, basic cursor movements, paging and scrolling through the file, the help feature, and inserting and deleting text. Additional topics include forming paragraphs and aligning text using tabs, margins, and centering; using the WordStar menu to change defaults; searching and replacing strings of characters; and rapid reformatting and printing of a file. *Introduction to PCs* or the equivalent experience is a prerequisite for this course.

4. More WordStar

This two-session, 6-hour course covers more advanced topics of the WordStar Professional Release 4.0 word processing program used on PCs. (The course does not cover WordStar 2000.) WordStar can be used to prepare memos, letters, and documents. The topics covered include more on using the WordStar menus; marking and manipulating blocks of text; copying, deleting, and renaming a file from within WordStar; commands affecting page layout; printing features such as boldface, underlining, superscripts and subscripts, and using the installation program to modify the WordStar defaults. *Introduction to PCs* and *Introduction to WordStar*, or the equivalent experience, are prerequisites for this course.

5. Introduction to dBASE III Plus

This two-session, 6-hour course offers a practical introduction to the fundamentals of the dBASE III Plus Database Management System. dBASE can be used to store, retrieve, edit, sort, select, summarize, and display data contained in files on a microcomputer. Topics include working with your database, planning your work, turning data into information, relational and logical operators, and the dBASE commands and job control. *Introduction to PCs* or the equivalent experience is a prerequisite for this course.

6. Introduction to Lotus

This two-session course introduces the Lotus 1-2-3, Release 2, spreadsheet package. Topics covered include learning what spreadsheets are, creating and editing a spreadsheet, performing calculations, and graphing results. Students need not have prior knowledge of spreadsheets. *Introduction to PCs* or equivalent experience is a prerequisite.

7. Introduction to Micro-Mail

This one-session, 3-hour class offers basic information on the PC electronic mail utility, Micro-Mail (**umail**). The course covers accessing Micro-Mail and the basics of sending and receiving mail. Students will learn how to access DOS from within Micro-Mail and how to find a person's *userid* by using the **pb** (phonebook) command on the PC. The *Introduction to PCs* course or equivalent experience is a prerequisite. The GPCC Orientation course and knowledge of a PC editor are recommended but not required.

8. More DOS

This one-session, 3-hour class is a continuation of the *Introduction to PCs* class. It is aimed at those who are familiar with the basics of DOS. Topics covered include how to use global filename characters, how to create and maintain directories, how to redirect input and output, how to create and use batch files, and how to configure the DOS prompt. *Introduction to PCs* is a prerequisite. Students must know how to boot an IBM-compatible PC, work with two disk drives, and use the DOS commands **dir**, **type**, **copy**, and **del**.

9. More Lotus

This two-session, 6-hour course is a continuation of the *Introduction to Lotus* course. Topics covered include database functions such as sorting and querying by type; creating macros to define a sequence of commands as two keystrokes; more advanced graphing; generating printed worksheets; and translating worksheets. Prerequisite to this course is the *Introduction to Lotus* course or equivalent experience.

Unix Courses

10. GPCC Orientation

This one-session, 3-hour class introduces students to the user support services and facilities available through the General Purpose Computer Center (GPCC). Those who attend will learn how to register to become a user on one of the GPCC computers, how to get started, the uses of each computer, how to sign on and sign off, and how to use some of the basic keys on a keyboard. The course is offered at no charge and is generally a prerequisite to other courses offered by the GPCC Training Office. The requirement may be waived depending on the individual's level of expertise.

11. Introduction to Computers

This one-session, 3-hour course is an introduction to computer concepts offered to those who are unfamiliar with computers. It is a beginner's course. Its purpose is to provide a basic understanding of computers and how they are used, and to explain some common computer terms. The information presented applies to microcomputers as well as larger computers. Topics included are the terminal screen and keyboard, basic computer commands, what an operating system is, what programming is, and how storage and memory are used by the computer. The course also describes computer networks and communications. There are no prerequisites. Students may find it helpful to take this course before the *GPCC Orientation* course.

12. Unix Concepts

This two-session, 6-hour course covers the fundamentals of the Unix (4.3bsd) operating system as implemented on the DEC VAX computers at NOSC. Topics covered include location and use of documentation, terminal control, file and directory concepts, file and directory tools, system utilities, and other Unix tools. The *GPCC Orientation* class is a prerequisite.

13. Introduction to RED

This two-session, 6-hour course introduces beginners to the basics of the full screen text editor known as RED. The RED editor can be used to prepare documents and electronic mail messages on Unix computers. Some of the topics covered are file concepts, positioning the cursor within a file, and inserting, deleting, restoring, moving, copying, searching, replacing, and repositioning text. The *GPCC Orientation* course is a prerequisite for the class.

14. Text Manipulation by using RED

This one-session, 3-hour course is directed toward more experienced users of the RED editor on the Unix computers. Its purpose is to introduce editing techniques beyond those covered in the *Introduction to RED* course. Topics include opening, closing, moving, and erasing text; invoking a Unix process from within the editor; windowing; and accessing other files. *Introduction to RED* or the equivalent experience is a prerequisite for this course.

15. Introduction to vi

This one-session, 3-hour course covers the fundamentals of the vi full screen editor on the Unix computers. Some of the topics covered are file access, navigating through a file, making simple changes, rearranging and duplicating text, and miscellaneous features. The *GPCC Orientation* course is a prerequisite for the class.

16. More vi

This one-session, 3-hour course is directed toward more experienced users of the vi editor on the Unix computers. Its purpose is to introduce editing techniques beyond those covered in the *Introduction to vi* course. Topics include how to use vi more efficiently, how to execute Unix shell commands from vi, how to move blocks of text and include other files in your text, how to create vi macros, and how to recover files. The *Introduction to vi* class or a working knowledge of vi is a prerequisite for this course.

17. Introduction to NOSC Electronic Mail

This one-session, 3-hour class offers basic information for the novice users of the NOSC electronic mail system. The course covers accessing the electronic mail program named **msg** and the basics of how to send and receive mail at the intermediate level. The *GPCC Orientation* course is a prerequisite. Knowledge of a Unix editor (e.g., vi or RED) is helpful, but not required.

18. More on NOSC Electronic Mail

This one-session, 3-hour class is directed toward more experienced users of the electronic mail system. It covers additional capabilities of **msg,** including customizing electronic mail to better fit your needs, filing your mail, mailing to groups of individuals, and sending files. Other topics covered are special addresses, finding out other users' addresses, and transferring your mailbox to another computer. This class is intended for people who already have at least 2 weeks' experience using electronic mail. It assumes you know how to sign onto the computer, call the electronic mail program, and use electronic mail to send and receive messages in the intermediate level. *Introduction to NOSC Electronic Mail* is a prerequisite. You must also know a Unix editor. If you do not know a Unix editor, a half-hour session on the RED editor is available before class; ask for it at enrollment. Some knowledge of Unix will be helpful.

19. Introduction to the Defense Data Network (DDN)

This fast-paced, one-session, 3-hour course is designed for those who need to communicate with colleagues over the DDN. The course provides a "hands-on" nontheoretical approach. It will cover DDN mail, remote login, and file transfer facilities with an emphasis on electronic mail and TAC access. The course does not cover the basic Unix file system commands or the NOSC Electronic Mail System. Thus a basic understanding of Unix file and directory concepts is necessary. The *Introduction to NOSC Electronic Mail* class is a prerequisite. Knowledge of a Unix editor is also helpful.

20. Introduction to NROFF

This one-session, 3-hour course provides an introduction to the NROFF text processor on the Unix computers. NROFF is used to produce formatted documents. The course is directed toward those users who need to generate large documents, rather than memos and letters. Some of the text-processing topics covered are general features of NROFF, structure of NROFF commands, basic NROFF commands, and command line combinations. Prior to enrolling in this course, students should have a working knowledge of Unix and an editor.

21. Introduction to -me macros

This two-session, 6-hour course covers the fundamental uses of the -me macro package, which is used with NROFF and TROFF. The -me macro package provides extended document preparation capabilities to the NROFF and TROFF capabilities. The topics covered include page layout in relation to the -me macro package, the concept of a macro, use of number registers, creating page headers and footers, numbered and labeled paragraphs, section headings, displays, and footnotes. This course does not cover the fundamental concepts of using a document processor such as NROFF or TROFF. Mastery of the concepts presented in the *Introduction to NROFF* or equivalent experience is a prerequisite for this course.

22. TROFF Considerations

This one-session, 3-hour course is aimed at users who have experience using the NROFF text processor on the VAX Unix system. It covers typesetting considerations for using TROFF on variable-space output devices such as laser printers. Topics covered include defaults in TROFF, registers, units of measure, point size, vertical spacing, typefaces, and fonts. Prerequisites for this class are a working knowledge of Unix, a working knowledge of an editor, and a demonstrable knowledge of NROFF. Knowledge of -me is helpful.

23. An Introduction to the C Shell

This three-session, 9-hour class covers the basics of the C Shell. C Shell is a command language interpreter. Some of the topics covered are csh commands, metacharacters and metasequences, lexical structure, built-in commands, job processing, expressions, login shell configuration, and shell scripts. The contents of the *.login* file will be explained, and csh interactions with Unix and user programs are also covered. Students should have completed the *Unix Concepts* course, or have equivalent experience.

24. Introduction to RTI INGRES Database System

This two-session, 6-hour class covers the basics of the RTI INGRES Database system. It includes a presentation of the INGRES database tools, a demonstration of INGRES capabilities, and instruction in the basic skills needed to create an INGRES database; students will also gain hands-on experience by using the database tools. The *GPCC Orientation* course, or equivalent experience, is a prerequisite for the class.

VMS Course

The two-session, 6-hour *Introduction to VMS* course provides an introduction to the VMS operating system that is now supported on the GPCC machine, *wahoo*. It is aimed at beginners who would like a general overview of some of the basic features of the VMS operating system. Students will learn how to log on and off a VMS computer, how to use the DCL command line format and special command line features, and how to use the online help facility provided by the VMS operating system. Special emphasis will be placed on understanding file and directory concepts, and students will be given hands-on time to practice creating and manipulating files and directories. This class will also cover global filename and directory characters, and students will learn additional DCL file and directory commands. Finally, *Introduction to VMS* will briefly cover how to read and send messages by using the VMS mail utility. There are no prerequisites for this course, but the *GPCC Orientation* course is recommended for those with little or no computer background.

Video Cassette Courses

Video cassettes covering a variety of subjects are available. Some of the video courses (with the number of cassettes for each course) are the following:

Ada (16)
C Language (16)
Data Communication Concepts (9)
Decision Tables (4)
Designing with Microprocessors (16)
FORTRAN-IV (with '77 Extensions) (11)
Pascal (Beginning, Intermediate, and Advanced) (24)
UNIX Fundamentals for Programmers (15)

For more information, contact the Video Production Section in Code 9622, Ext. 34864.

FREQUENTLY CALLED PHONE NUMBERS FOR THE GPCC

Communications	Ext. 32270
Computer Resource Center	
Bayside	Ext. 32247/32250
Topside	Ext. 32268
Hawaii	Ext. 254-2171
Computer Training	Ext. 32245/32264
Customer Services (account info)	Ext. 35569/32241
Documentation	
Topside Technical Library	Ext. 34890
Bayside Technical Library	Ext. 34908
Highlights Editor	Ext. 32265
Office Automation	Ext. 32198
Operations	Ext. 32252
PMSS Access Administrator	Ext. 32293

ELECTRONIC MAIL ADDRESSES FOR THE GPCC

Communications	gcbnet
Computer Resource Center	crc
Computer Training	gpcctrain
Customer Services (account info)	accounts
Documentation	documents toplib baylib
Highlights Editor	highlights
Office Automation	keil
Operations	operator
PMSS Access Administrator	pmssaccess

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13 ABSTRACT *(Maximum 200 words)*

Revision 2 of the General Purpose Computer Center (GPCC) Survival Guide is designed to help users gain access to and use GPCC resources, providing a quick reference to answer common questions.

14 SUBJECT TERMS
General Purpose Computer Center (GPCC), Computer Resource Center (CRC), Unix, VMS, NROFF, TROFF, Biomedical Computer Programs (BMDP), INGRES, electronic mail, Micro-Mail (umail), Project Management Support System (PMSS), training, available documentation (EC)

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