

**PRENTICE
COMPUTER
CENTRE**

**GENERAL
INFORMATION**

**University of
Queensland**



**MNT-1
1st March, 1978**

GENERAL

The purpose of this brochure is to provide an overview of the services and facilities offered by the University of Queensland Prentice Computer Centre and the administrative arrangements necessary to make use of the Centre. As it will be published only periodically (probably annually), some of the information may become out-of-date and may be subject to change without notice. Whenever possible, all changes are advised through the newsletter and active users should ensure that they have regular access to copies of it.

Intending users should also consult the introductory Technical Manual **MNT-2 Using the U.Q. PDP-10 System** and other detailed reference manuals referred to in this publication.

INTRODUCTION

The Prentice Computer Centre of the University of Queensland is a central support department for the University of Queensland and Griffith University. It provides a timeshared interactive and batch computing service at prescribed rates based on Digital Equipment Corporation PDP-10 systems. The Centre assists teaching, research and administrative work throughout the Universities by the provision of specialised programming and consulting services, the survey and development of general use programs, the development of specific programs on behalf of users (at prescribed charges), the provision within budget constraints of state-of-art hardware facilities, and the development of apt communications facilities. It also offers a data preparation service as well as software and engineering support services for departmentally owned computing equipment. The Centre also provides services to external clients, mainly other educational institutions, and State and Commonwealth Government departments who have special requirements which may best be met by the equipment and facilities available at the Prentice Computer Centre.

There are currently more than 120 user departments/organizations and approximately 2500 individual users. The system is in operation up to 3 shifts daily for 5 days of the week and at weekends during periods of peak demand.

LOCATION

The Prentice Computer Centre is located at the east end of the Hawken Building on Circular Drive, St. Lucia.

All enquiries, receipt and dispatch of work and programming consultation are handled in the Centre's service areas located at:

- (a) Room G10A on the ground floor of the Hawken Building on Circular Drive, St. Lucia (behind the public client area). This is the main service centre and all accounting control is handled here. Special graphics terminals and other facilities are also available, as well as a general consultation service.
- (b) Room 1.39 in the Humanities Building at Griffith University, Nathan. The Griffith batch station moves to the Science Building in midyear.

- (c) Room 220 in the Commerce Building on Circular Drive, St. Lucia. Consultation on statistical problems is handled at this service area. The Centre's card punching service is also located at this centre.

Adjacent to each of these service areas is a public client area equipped with interactive terminals and card punches for program correction. Documentation for the Program Library is available at service centres.

HOURS OF OPERATION

Interactive computer services (i.e. from remote terminals) are available from 8 a.m. to midnight, Monday to Friday inclusive with the exception of public holidays. Batch services are also available during these times from the Hawken Building service centre and from 9 a.m. to 5 p.m. at the other service areas. Batch service includes the receipt of card decks for processing and the release of any printer or plotter output produced for the user.

Depending on system load, extended hours of operation (including weekend operation) may be provided at busy periods of the year. These hours of operation may change in the future as it is hoped with the introduction of additional computing capacity that it may not be necessary to work the third shift for a while. Much depends on the level of demand, and any proposed changes will be advised by the newsletter.

Although the system is operating at acceptable levels of reliability, there will be periods when it will be unavailable due to hardware or software faults. Advice on the expected period of unavailability is provided by way of the Computer System Status recorded telephone message (Phone 377 3101 or University of Queensland Extension 3101).

ENQUIRIES COMPLAINTS and SUGGESTIONS

Normally all enquiries and problems should be directed to the service area, or to the Operations Manager. However, the Director is anxious to hear directly from users having complaints regarding the level or adequacy of service offered by the Prentice Computer Centre. Suggestions for improvement are welcome.

ORGANIZATION

The Director is the chief executive and technical officer of the Centre. He is responsible to the Computer Centre Management Committee for the effective functioning of the Centre within prescribed policy and acts under the general direction of the Deputy Vice-Chancellor, (Fabric & Finance) University of Queensland subject to control by the Senate of the University.

The Management Committee consists of the Deputy Vice-Chancellor (Fabric & Finance) University of Queensland, the Vice-Chancellor Griffith University (or nominee), the Chairman of the Research Committee, University of Queensland (or nominee), the Head of the Department of Computer Science, University of Queensland and the Director of the Prentice Computer Centre.

The Centre is organised under five main sections:

(a) **Operations Section**

Responsible for the day to day operation of the computing and data preparation services offered by the Centre.

(b) **Engineering Section**

(i) **Engineering Services.** Responsible for the maintenance of central computing and communications equipment.

(ii) **Engineering Development.** Responsible for the development of special interfaces and other equipment within the network.

(c) **Software Programming Section**

Responsible for maintaining operating software, language compilers and utility programs. Develops special general use software and systems to meet the needs of the Universities.

(d) **User Services Section**

Provides a contract programming service for programs required by individual users; promotes the more efficient use of computer facilities throughout the Universities by specialised consulting assistance and the conduct of training courses; implements and maintains program packages to support the teaching and research needs of the Universities.

(e) Mini/Micro Computer Support Group

Provides general assistance to departments in this area, including advice, provision of standard software, assistance in interfacing computers with on-line experimental equipment, and maintenance.

DEPARTMENT OF COMPUTER SCIENCE

The Department of Computer Science is the academic department responsible for teaching and research in computing at the University of Queensland, and is located on the second floor of the Hawken Building. The head of the department is Professor G.A. Rose. Enquiries regarding formal course offerings should be directed to his secretary (telephone University of Queensland extension 3952).

COMPUTING POLICY COMMITTEES

The University of Queensland and Griffith University each has a Computing Policy Committee. This Committee is representative of Faculties, Schools, and Administration. The Director of the Prentice Computer Centre is a member of both Committees. The Committee is concerned with the coordination of computing resources, both central and departmental, throughout the total University. It makes submissions on final requirements and recommendations on the allocation of capital funds for computing.

MACHINE SYSTEM & SOFTWARE

The PDP-10 computer system is currently a dual processor (KA10) configuration with 240 Kwords (36 bit) of core memory and on-line disk storage of 600 million characters. In excess of one hundred and twenty remote terminals of various types are connected. In addition to the usual peripherals some other hardware items of interest to users are two plotters (an 11" and a 36" with 3 pens) and an optical mark card reader.

A new PDP-1090 system will be installed and operational in March 1978. It will provide more than twice the capacity of the existing system and comprises a KL10 processor, 512K words of core, 600 million characters of on-line disk storage, two 9-track magnetic tape drives, a high speed printer, a data channel to allow

connection of some of the existing disk drives, and communications equipment to allow connection of further terminals and departmental computers.

One KA processor, 48K words of core, and one data channel have been traded in and will be removed by approximately May 1978.

Batch stations comprising a PDP-11 mini-computer with card reader, line printer and console terminal are located at each of the remote service areas.

In the Hawken building service area there is a public graphics terminal room which may be used by arrangement through the supervisor of the service area. The equipment available includes a Tektronix 4040 display terminal and a GT40-2 dynamic display terminal. A flatbed digitizer is also installed and will be made available on request. An OPSCAN 17 optical sheet reader is installed at the adjacent service area and can be used for data entry.

Core Memory Availability

The amount of core memory available to individual user programs varies with time of day:

0800 - 1800 hrs	40K
1800 - 2400 hrs	70K

Users having need of core beyond 70K should first discuss requirements with the Director of the Centre.

Disk File Allocation

The public file area must be shared by all users. For operational efficiency the public area is spread across several drives.

A limited amount of on-line file storage is available to each user, and a virtually unlimited amount of off-line storage, accessible via the File Migration System. Any file in the on-line area which has not been accessed for three weeks (on average) will automatically be purged to off-line storage. Users will help preserve this limited resource by keeping only a minimum working set of files on-line.

For some structures of the on-line system, the *Limited Life Storage* structures, files are deleted at the end of their on-line occupancy rather than being transferred to the off-line area.

Private Secondary Storage

As well as the allocation on the public file storage area, users may hire private disk packs, magnetic tapes and DECTapes for their own use. Details on how to use these facilities are contained in relevant technical manuals (e.g. RESOURCE, MOUNT and DISMOUNT commands - refer DECsystem10 Users Handbook). General information and administrative arrangements regarding these devices are as follows:

Private Disk Packs

An RP02 disk pack has a total capacity of approximately 30 million characters. Directories may be established for one or several users under control of the system. Packs may be hired at \$20 per month. Alternatively on payment of a capital contribution of \$400 a private disk pack will be made available to a user for a period of three years. Disk packs remain the property of the Prentice Computer Centre and cannot be taken from the computer room. The Centre accepts liability to replace faulty packs and will be responsible for storage. No pack from another installation will be processed at the Centre. As well as the hire charges for packs there are also charges for mounting of disks and disk drive occupancy time. Normal file input/output charges apply but there is no charge for file storage.

The Centre has three drives normally available for the private disk pack service. Use of these drives for the mounting of packs may be booked in advance at the computer room (ext. 3015). A 1 hour limit applies to bookings from 8 a.m. - 6 p.m., while after 6 p.m. disk drives may be booked for a period of two hours. Requests should indicate the user and pack identification. A request for immediate mounting of a pack will be honoured if possible, although this will depend on the availability of the drives. Twenty-four hours notice of cancellation of a booking should be given, in which case no charge will be made. If less than 24 hours notice is given, the user is liable for the occupancy charge to cover the period of the booking. In the case of the system not being available, the user will be charged only for the time during which the system was available. It will not be possible to extend the period of a booking that has been interrupted by a system crash if other users have booked the drive for use after the period in question.

Magnetic Tapes

Currently the Prentice Computer Centre has two 7-track and two 9-track magnetic tape drives on the KA10, and two 9-track drives on the KL10. The use of these tape drives may be booked in advance under the same conditions that apply to booking disk drives. Users are warned that although bookings can be made, scheduled system functions may inhibit availability of these drives. Further, hardware problems may at any time put a particular drive out of service and no application should be planned which assumes the availability of both drives of a particular type. Magnetic tapes may be bought privately or hired through the Centre. For reasons of security, some users may prefer to store tapes away from the Centre. If processing of these tapes is required, it should be noted that some authorities recommend a two day acclimatization period within the Centre's air conditioned environment before the tapes are used.

Arrangements must be made with the Centre for registration of tapes before use. An external label will be affixed to the tape and this label number is used for all future identification. As a safeguard against improper use, labels are specific to drive type. Thus if a tape is registered as 7-track and is to be used on the 9-track magnetic tape drives, it must be re-registered with a 9-track label.

DECTapes (KA10 only)

DECTapes have a total capacity of approximately 350K characters and up to 22 files can be stored on each reel. DECTapes are available for use either on an on-line or off-line basis (refer MOUNT and FILE commands - DECsystem10 Users Handbook). Only one DECTape will be made available to a user at any one time except by special arrangement with the Operations Manager. DECTapes may be purchased or hired through the Centre. Arrangements must be made with the Centre for certification and labelling of tapes before use.

Limitation of Magnetic Tape and DECTape Service

It can be appreciated that with such a large number of individual users, the widespread use of magnetic tape and DECTape as a means of extending storage allocation would become operationally unwieldy and the service to all users would deteriorate.

For this reason the Centre provides a general off-line public storage area supported by a File Migration System to allow ready transfer of files between the on-line and off-line areas. Users are requested to restrict the use of magnetic and DECTapes to essential needs that cannot be met by the File Migration System. (e.g. communication with other machine systems.)

Backup

The Prentice Computer Centre is formally excluded from liability for the loss of information from data or program files. In practice, the Centre provides backup for the public file area by copying files to magnetic tape or other disk weekly and backing up on a daily basis any newly created or updated files. These backup files are kept for a period of at least four weeks. This system provides a high measure of reliability and is generally satisfactory for the normal processing which takes place at the Centre. However, it is not 100% foolproof and if very critical data is involved, users should make further arrangements for the security of their files. It should be particularly noted, however, that magnetic tapes, DECTapes and private disk packs are not supported by the Centre's backup procedures and users should make independent arrangements for their backup. Backup of private disk structures may be arranged through the Centre at the user's cost.

Acoustic Terminal

Three portable acoustic coupled terminals (Texas Instruments Silent Model KSR733) are available for temporary connections to the PDP-10 system. Communication between terminal and computer system is via a normal telephone line.

The connection is made by dialling a special number at the Prentice Computer Centre and placing the telephone handset in a cradle on the terminal. Thus the Centre can provide a temporary service to any point where a telephone service exists.

The Prentice Computer Centre is anxious that academic departments exploit the use of the acoustic terminal for teaching purposes and, as far as possible, preference in bookings will be given for use of the terminal in class work.

All bookings must be made at the computer room (ext. 3015) and it would be appreciated if advance notice of bookings could be given.

The base charge rates applying to the acoustic terminal are as follows:

- (a) normal \$0.80 per hour terminal connect charge, plus
- (b) hire rate for time the terminal is away from the Centre, of
 - (i) \$1.50 per hour or part thereof with a maximum rate of \$10 per 24 hour day ceasing at 0830 hours,
 - (ii) an overnight rate of \$5 from 1830 hours until 0830 hours the following morning.

The user type charging factor given in the section on charging will apply to the base rate given above, but not to the maximum rate of \$10.00 or the overnight rate of \$5.00. Thus for an external user, the connect time rate and the hourly hire rate are multiplied by 2.1.

No privately owned acoustic coupled devices are permitted connection to the Centre except by specific authorization by the Director.

Languages

The most commonly used languages together with a cross reference to the detailed reference manual are listed below. Other languages (e.g. SNOBOL) that are less frequently used are available and enquiries should be directed to the programming staff.

- (a) **ALGOL**
An algorithmic language suitable for scientific applications.

Reference: DECSYSTEM10 Algol Manual
Algol 60 Programming
- (b) **BASIC**
A simple FORTRAN-like language specifically designed for interactive processing. It has its own inbuilt editor and interpreter.

Reference: DECSYSTEM10 BASIC Manual
DECSYSTEM10 BASIC Card
- (c) **BCPL**
A high-level, recursive programming language suited to non-numerical software

programming applications.

Reference: BCPL manual (MNT-13)

- (d) **COBOL**
A high level language particularly suited for business applications.

Reference: DECsystem10 Cobol Reference Manual
DECsystem10 Cobol User's Guide
DECsystem10 Cobol Reference Card

- (e) **FORTTRAN-IV**
Especially suited for mathematical and scientific applications. A DEC-extended version of Fortran-IV for the PDP-10, known as Fortran-10, is available.

Reference: Fortran-10 Language manual

- (f) **MACRO**
Symbolic Assembly Language for the PDP-10. Used mainly for system programs and writing subroutines for Fortran or Cobol programs.

Reference: MACRO-10 Manual

- (g) **SIMULA**
An Algol-like language incorporating facilities for discrete event simulation.

Reference: Simula Manual
(Available for reference from the Centre)

Systems Software and Utilities

The PDP-10 operating system allows timeshared multiprogramming and dynamic resource allocation. We use a modified version of the Digital Equipment Corporation 6-Series operating system. Some of the more important utilities are:

- (a) **CREF**
A cross reference listing program to aid program debugging and modification.

Reference: Utilities Manual

- (b) **DDT & COBDDT**
Enables debugging of on-line programs while they are executing.

Reference: DDT - Utilities Manual
COBDDT - Cobol Reference Manual

- (c) **EDIT**
A line oriented editor in general use at the University of Queensland.

Reference: MNT-6

- (d) **LINK-10**
The principal loader to load relocatable user programs and subroutines.

Reference: LINK-10 Reference Manual

- (e) **PLOTTING ROUTINES**
These routines comprise the basic software necessary for use of the 11" and 36" plotters together with a suite of functional routines.

Reference: MNT-11

- (f) **TEKTRONIX Graphics Software**
A library of routines to facilitate the use of Tektronix displays for the preview and development of graphic output.

Reference: A set of manuals is available from the program librarian.

- (g) **TECO**
A character oriented editor.

Reference: TECO Manual

- (h) **RUNOFF**
A text formatting program that assists in the preparation of documentation. This brochure was initially prepared using Runoff and the file produced was then modified for typesetting with the C.S.I.R.O. COMTXT system.

Reference: Utilities Manual

Scientific, Statistical and other Packages

The Centre supports a large range of scientific and statistical packages for the PDP-10 system. The major ones are:

- (a) **IMSL Subroutines**
A set of subroutines primarily concerned with statistical applications. The use of these routines is recommended in all developmental

work.

Reference: MNT-3
The IMSL Library Vols 1 & 2
(Available for reference from the
Centre.)

- (b) **Scientific Subroutine Package**
This package comprises approximately 250 Fortran subroutines covering many areas of mathematics and statistics. This system has been superseded by the IMSL Package.

Reference: IBM SYSTEM/360 SCIENTIFIC
SUBROUTINES PACKAGE

- (c) **Statistical Package for the Social Sciences**
This is a widely used package developed at Stanford University especially oriented towards social science data analysis.

Reference: Statistical Package for the Social
Sciences, McGraw-Hill, Nie Bent
and Hull

- (d) **BioMedical Computer Programs**
A number of the more frequently used programs from this package are available on the system.

Reference: Biomedical Computer Programs,
University of California Press, E.
& W.J. Dixon.
It is recommended that new users
refer to MNT-3 **Statistical
Packages on the U.Q. PDP-10.**

Teaching Systems

A number of packages are available to assist with the use of computers in teaching applications. This is an area which naturally attracts interest in this environment and the Centre is keen to receive suggestions for other packages which might be investigated.

- (a) **MONECS**
A Student Fortran system which runs on the PDP-11 computers at all service areas. A Student Basic system is available at the Commerce and Griffith batch stations. Both systems were developed by Monash University. Input is from mark-sense cards rather than the conventional punched cards and eventually it is intended that this system will be run cafeteria style.

- (b) **PASCAL**
Pascal is a language used substantially by the Department of Computer Science in its teaching programme. It accepts mark-sense cards for input.

- (c) **GNOSIS**
A system for the generation of CAI lessons. The TOPSTEACH lessons on the TUT: area have been developed with this system.

Reference: Documentation is available from the program librarian.

- (d) **TUSTAT**
A tutorial system for statistics with time-sharing computers. This package is implemented as a series of Basic programs on the STA: area.

Reference: TUSTAT Reference Manual

- (e) **EVAL**
A multichoice test marking system.

Reference: EVAL manual

SOFTWARE CLASSIFICATION

Software distributed by the centre is classified with one of four categories:

Type 1:

Systems software that has been subjected to normal testing by the Centre. Type 1 software is accorded support in the form of documentation, educational courses, programmer consultation and correction of software errors.

Type 2:

Applications software that has been formally tested by the Centre. Type 2 software attracts the same level of support given to Type 1 software.

Type 3:

Software of general interest that has been submitted by users, DECUS etc. or obtained from other sources. These programs satisfy basic standards of testing and documentation but have not been formally tested by the Centre. Type 3 software is given some support, but this has low priority.

Type 4:

Software that has been contributed for general use from a variety of sources. The Centre has done no testing of these programs and merely distributes them for the benefit of interested users. This software attracts no support.

This classification of software covers both systems and applications and specifies the level of support provided by the Centre for various items of software. The classification given to any item of software depends, among other factors, upon use. Thus an item of software may be reclassified as usage fluctuates.

PROGRAM LIBRARY

The aim of the program library is to make available to users as many software packages and routines as possible. Material included in the library comes from a wide variety of sources. In addition to material received from Digital Equipment Corporation, DECUS (The Digital Equipment Users group) and other universities, users are also encouraged to contribute programs of general use. Before acceptance into the library, programs must of course meet certain installation standards. Intending contributors should consult with the Systems Analyst - User Services.

All routines and programs available in the library are catalogued and listed in the library index. The library catalogue is left on disk and copies can be obtained from the system by printing the file DOC:CATLOG.TXT. Copies of the catalogue can be consulted at service areas. Once a user has decided which program is of interest, he can obtain microfilmed documentation of the program from the Program Library to view on the microfiche reader at the service area. **The library system is presently undergoing an extensive revision which has been occasioned by the change and development of this system, particularly as a result of the introduction of the KL10. Users are recommended to enquire of the duty consultant or program librarian if difficulties are encountered.**

The most frequently used library routines can be accessed from the public on-line storage area as shown in the catalogue. Less frequently used routines are held off-line but users can make requests for copies on their own disk areas.

The Centre is keen to expand the library by the addition of useful programs. Requests for additional programs to be included should be made to the Director of the Computer Centre providing full details of the programs required, name and address of institution offering the programs, the charge (if any), and any known conditions or restrictions.

The program librarian will be pleased to assist users with any difficulties.

MINI/MICRO COMPUTER SUPPORT

With the large growth of computers in these categories at the University, a Support group has been established within the Prentice Computer Centre. In the case of the PDP11/34, significant numbers of which are being installed, it is possible to offer more extensive support including maintenance, software support, and some library programs. The cost for maintenance support is given below in the section on charges. Software and documentation for PDP11s will be available as follows.

RSX-11M	Operating System and Utilities
RSX-11	Fortran (includes extended Fortran)
RSX-11	Basic
RT-11	Operating System and Utilities
RT-11	Fortran
RT-11	Basic
RT-11	Lab Package

Other operating software which will be available by arrangement but not currently supported by the Centre is RSTS/E, MUMPS, and the UNIX system.

It is planned to release the following items of software later:

RSX-11	Algol
RT-11	Algol
RSX-11	Pascal
RSX-11	Runoff
	Scientific Subroutine Package
BIOMAC	macros for structured MACRO-11
DECGraphic-11	Fortran Graphics Package

There will exist on the KL10 system a variety of aids for the small system user. With the release of DECNET-11M software and with appropriate hardware, a variety of cooperative processes in the KL10 and the mini-computers will be possible. In addition, there are a number of PDP10 based systems for the generation and testing of small computer software. Users are referred to the Mini/Micro handbook (in preparation) for further details.

The Centre also has a variety of PDP-11 training aids and courses are planned to cover a number of areas.

USER INFORMATION

The Prentice Computer Centre provides various sources of information for users. The Computer System Status Service provides details of computer operations and times for system availability. The Newsletter and NOTICE.TXT provide notification of services and difficulties. A wide variety of technical manuals are available describing use of the Centre's facilities.

Computer System Status Service

The Computer System Status Service is a recorded telephone answering service giving users details of times for interactive or batch processing and the state of the system in the event of a malfunction. The University of Queensland extension is 3101 and the direct number for other areas is 377 3101.

While the Centre will attempt to keep to the published times of operation, these times can only be regarded as approximate. The Computer System Status is the fastest way of notifying users of any changes in the timetable, any system malfunctions, and in the event of any malfunction the expected time for resumption of service.

NOTICE.TXT

This is automatically printed on the user's terminal during the LOGIN procedure or if a batch job it will be included in the job log file. It provides brief summaries of important announcements. The message is also posted at all service areas.

Newsletter

The Prentice Computer Centre newsletter aims at providing timely information about system changes, new systems or other information of general interest to users. It is mailed to the head of each University section, nominated liaison staff and, on request, other active users. Please contact the computer office if you do not have ready access to a copy and would like to be included on the mailing list. Copies are also available from all service areas.

MINI/MICRO Newsletter

A similar newsletter oriented towards the user of small computer systems now exists. Copies will be available from all service areas and a mailing list exists for those who would like to receive it regularly.

Manuals

The Centre provides a number of manuals detailing the various facilities offered. Although some of these are standard Digital DECsystem10 Handbooks, the Centre also publishes its own manuals for those features peculiar to this system, for elaboration and explanation in areas where the Digital manuals are felt to require amplification and for locally developed systems and packages. A complete list of all manuals available from the Centre and their prices follows. **Please note that these prices are correct at the time of publication but may change at any later time.**

DECsystem10 Manuals and Reference cards

ALGOL Programmer's Reference Manual	\$14.00
BASIC Conversational Language Manual	\$5.00
Beginner's Guide to Multiprogrammed Batch	\$7.00
COBOL Programmer's Reference Manual	\$18.00
COBOL User's Guide	\$11.00
FOCAL-10 Reference Manual	\$3.00
FORTTRAN IV Programmer's Reference Manual	\$11.00
FORTTRAN-10 Language Manual	\$5.60
Getting Started with the DECsystem10	\$11.00
Getting Started with TOPS-10	\$4.50
LINK-10 Reference Manual	\$11.00
MACRO-10 Programmer's Reference Manual ...	\$14.00
Monitor Calls Manual and Addendum 1,2,3	\$24.00
Operating System Commands Manual	\$14.00
SORT user's Guide	\$11.00
System Reference Manual	\$10.25
TECO Reference Manual and Addendum	\$7.00
Utilities Manual and Addendum	\$11.00

Reference Cards

BASIC	\$0.40
COBOL	\$0.40
Monitor Calls	\$0.40
Operating System	\$0.40
System Commands	\$0.40

Manuals from other Sources

ALGOL 60 Programming on the DECSystem 10	\$4.00
MIDITRAN	\$2.00
IOLIB Manual	\$3.00
BMD Biomedical Package for the Social Sciences	\$16.00
SPSS Statistical Package for the Social Sciences ..	\$17.00
SYMAP Reference Manual	\$20.00
SYMVU Reference Manual	\$10.00
CALFORM Reference Manual	\$10.00
TUSTAT Reference Manual	\$20.00
DEC-System-10 Reference Booklet	\$1.00

Prentice Computer Centre Publications

MNT-1 General Information	Free
(This brochure)	
MNT-2 Using the U.Q. PDP-10 System	\$1.50
MNT-3 Statistical Packages	\$1.60
MNT-6 Editor Manual	\$1.00
MNT-10 Aid	\$3.00
MNT-11 Plotting	\$4.50
MNT-13 BCPL	\$4.60
MNT-14 Runoff	\$1.50
MNT-15 Snobol 3	\$0.50
EVAL Instruction Manual	\$1.00

COURSES & SEMINARS

The Prentice Computer Centre regularly conducts short courses on the various facilities available on its systems, as well as introductory Fortran programming courses and has available a variety of teaching aids.

Seminars on new items of hardware and software or on topics of specific interest are held during the year.

Details of forthcoming courses and seminars are circulated to all user departments and organizations and are published in the Newsletter.

**PROGRAMMING AND SYSTEMS
SUPPORT**

Subject to the availability of suitable programmer resources, the Prentice Computer Centre will undertake programming work for users on a paid contract basis. Users interested in having programs written for them should contact the Systems Analyst - User Services for further details and quotation.

A variety of special systems have been developed in connection with projects undertaken at the Centre and a user with a special requirement may find it worthwhile contacting the Systems Analyst - User Services to discover whether existing software might meet his requirement. These special developments include: special file access techniques, form generation packages for data entry systems, a flexible label package, a package and procedures to read and translate a variety of magnetic tape formats, simulators and cross-assemblers for mini- and micro-computers, development of program library maintenance procedures, procedures for producing microfiches and so on.

CONSULTING

The Prentice Computer Centre is keen to assist users in the effective use of computers and offers a consulting service for programming and systems work. Users will appreciate that Computer Centre staff are involved in other support activities and a fair balance must be struck between scheduled work and programming consultation. For this reason, the procedures indicated below have been established.

No charge is levied for short consultations but a charge may be applied to very lengthy consultations carried out on a users behalf. It is of course of benefit to the Centre and all users if suspected faults in software are brought to attention as quickly as possible, and a charge would not of course be levied in this case.

The following arrangements apply to consultations on programming difficulties:

- (a) Students must take all programming problems to their academic supervisor.
- (b) Duty Programmer(s) will be scheduled at locations and during periods specified from time to time in the newsletter and displayed in the service areas.

- (c) If a user is unable to detect a fault in his program or procedures, he should report the problem to the Centre by completing an appropriate **Problem Specification** form.
(NOTE: No advice will be given on programming difficulties unless a Problem Specification has been properly completed).
- (d) If a user is unable to attend personally during the scheduled hours of the duty programmer, the problem will still be worked on, and a written reply made available for collection from the service area. In this case, the user should provide on the specification form, a telephone number and most convenient time when contact can be made for additional information or discussion if required.
- (e) As all problems cannot be solved immediately it may be necessary to leave a problem with the Duty Programmer. In this case the problem solution can be collected at some later date. It may be of interest that the Centre analyses the completed problem specification forms to assist it in developing improvements to the system and to provide indication of the need for training courses or improved documentation.

DATA PREPARATION

The Centre offers a data preparation service covering keypunching, verifying and interpreting of data at prescribed charges. Material for keypunching should preferably be submitted on standard coding forms accompanied by a **Requisition for Data Preparation** form. Coding forms can be purchased from the Centre, Bookshop or the Stationery stores; Requisition forms are obtainable from the Hawken Building service area.

Data preparation work is handed in or collected from the Commerce service area.

The Data Preparation service exists either on a *first-come-first-served* basis or by advance bookings (for keypunching only). The Centre cannot guarantee that work submitted under the *first-come-first-served* basis will be completed by a specified time.

Reservations for advance bookings will be accepted under the following conditions:

- (a) The minimum time which can be booked is 15 minutes.

- (b) Bookings should be made at the Commerce service area at least 24 hours in advance of the desired time, although the availability of time cannot be guaranteed. Bookings can also be made by phone on extension 3963.
- (c) Cancellations must also be made at least 24 hours in advance of the allocated booking, otherwise a charge is made for the period booked.
- (d) If the work involved exceeds the time booked, then the work will be terminated whether it is completed or not. Arrangements can be made subsequently for the completion of the work.

The main card code used on the PDP-10 is a standard card code based on USASCII standards. The card punches at the Centre are IBM-029 modified machines. Unless a user specifies otherwise on his Requisition form the standard code will be used for all data preparation work submitted to the Centre.

The Centre recognizes that the punching of cards is a problem in many University applications so an optical mark card reader has been operational since early 1974 mainly for the MONECS system. MONECS runs entirely on the mini-computers at the batch stations and is run on a scheduled basis. Pascal also uses marked-card input, although the actual processing is done on the central system. There are many applications where it is thought that marked-cards would have an advantage (e.g. survey data, examinations) and users intending to use this mode of input are advised to consult the Systems Analyst - User Services for further details. The card readers at all service areas have a marked card capability.

The use of marked cards has allowed the University to meet the problems of data input for first year programming assignment work. However they do have some disadvantages and on behalf of the Computing Policy Committee, the Centre in conjunction with the Department of Computer Science, is investigating the feasibility of low cost data entry stations using keyboards and microcomputers. The OPSCAN 17 Optical sheet reader is also available for document input. This reader offers much greater flexibility in the design of forms though it cannot read as fast as the conventional card readers. Intending users should contact the Systems Analyst - User Services for details.

PUBLIC CLIENT AREAS

Client areas have been established at all service areas for the benefit of users and it is hoped that all will cooperate to maintain them as pleasant work areas. These areas have terminals and card punching machines installed for the use of registered users. Control cards and tables are provided to enable batch decks to be assembled. A microfiche reader is installed for the viewing of program library material.

The Centre will:

- (a) Maintain the card-supply for hoppers of the card punches.
- (b) Check and refill terminal paper rolls.
- (c) Arrange cleaning of the area. The cleaners cannot be expected to know whether cards or other paper left lying about is wanted or not. Their instructions are to remove every card, piece of paper etc. from the room.

We ask users to observe the following points:

- (a) **NO SMOKING** in the Client areas.
- (b) No food or drink to be taken into the areas.
- (c) Please keep the level of noise to the minimum necessary to do your work. We have a responsibility to ensure there is no interruption to lectures and seminars conducted in the immediate vicinity.
- (d) Our machines are covered by maintenance contract. **DO NOT** attempt to repair them yourselves. Report all faults to the adjacent service area.
- (e) We ask all users to cooperate with each other to ensure that all have a fair share of the machines. The key punches are provided primarily for corrections and users should limit themselves to approximately 5 minutes. Terminal use should be limited to approximately 15 minutes unless there is no one waiting.
- (f) When you have finished your work:
 - (i) place all your used cards, paper and other rubbish in the bins provided.
 - (ii) leave quietly so that others may get on with their work.

USE OF THE PRENTICE COMPUTER CENTRE SYSTEM & SERVICES

Registration as a User

A form **Authority to Establish New User** available from the Centre must be completed. Since the use of computing facilities will cost money, it must be signed by an "authorized officer" in the terms of the Conditions of Use and Liability Statement given on the back of Computer Centre Order Forms.

Intending external (that is other than University) users must also apply to the Director for approval to establish an account before proceeding further. The attention of prospective external users is also drawn to the minimum monthly charge which is discussed in the section on charging.

The registration of a new user requires specification of four items, namely a **Project/Programmer Number (PPN)** to identify the user, a **Password** to provide security for the user, a **Charge Code** to enable the system to collect the costs of services utilized, and finally a **User Name** to be used to identify listings and other computer output. Usually these details will be allocated in a standard manner by the Centre's Accounting Supervisor but there are a range of facilities available which may be useful in controlling and reporting on the costs of groups of people working under common charge or account codes, for example, large student groups or people working on common projects.

The user's signature will also be required and is checked for each batch run submitted.

Funding and Orders

Following registration, the user must commit funds from an account to the charge code by completing a **Prentice Computer Centre Order**, which will establish an expenditure limit for subsequent use. The costs of all work associated with the processing of the user's jobs are progressively accumulated against the charge code and matched against the expenditure limit. As funds are depleted, new orders must be placed to authorize further expenditure to enable work to continue.

Expenditure on all charge codes is posted to the controlling accounts on a monthly basis. All user organisations are provided with monthly statements of accounts and procedures exist to protect the Centre and users against unauthorised expenditure.

Pads of order forms are available from the University stationery store; for external users, forms are available from the Accounting Supervisor at the Hawken service area. The order form is in duplicate. The rear copy should be retained by the user department for checking against the monthly statement and the top copy should be forwarded to the Centre for entry of details. The information on the order form includes the department name, the user name, the official account (for University users) from which funds are to be supplied and the charge code.

User Identification and Passwords

Users are identified on the system by a project/programmer number (PPN). Each project has a unique number but a number of programmers can work from the same project. Usually a project number relates to a particular section or user department but to meet special needs, more than one project number may be allocated. The programmer number is unique for each individual user of the project. It would usually be allocated by the Accounting Supervisor when the user was registered, but project owners may wish to allocate programmer numbers themselves within a project.

To initiate any work on the system at all, a mandatory, though simple procedure requires the PPN to be quoted for identification together with one of the following additional security measures:

- (a) Terminal users must use a password during the logging-in procedure. This is initially allocated at the time of registration but users are recommended to change it immediately in the manner described below. The password is then not known even to the Centre as it is encoded by means of a one way cypher. Of course, it follows that if a user forgets his password, he must request the Centre to enter a new password on his project. Users should endeavour to maintain the confidentiality of their password and it is good practice to change the password from time to time, e.g. .LOGIN/PASSWO will permit a new password to be entered.
- (b) For work submitted through batch, the user's signature on the header card is checked manually against the master copy of the signature provided at the time of registration as a user. The system will check the punched details and access will be denied unless name and PPN match.

Cancellation of Inactive Users

The presence of files and accounting entries for inactive users does cause an increase in system overheads and may restrict access to other potential users. For this reason, the Prentice Computer Centre regularly monitors usage and may remove inactive users.

- (a) When a charge code is found to have been inactive for a significant period, the owner will be advised and if still no use is made of it, it will be cancelled and all associated files removed from the system.
- (b) All PPNs are established with an expiry date. At every Login immediately prior to expiry, the user will be warned of the impending expiry and a continuing user will have to arrange for the extension of the expiry date. Periodically all expired PPNs will be removed from the system.

Rates for Services

Rates for services are reviewed from time to time by the Prentice Computer Centre Management Committee (current rates for all Computer Centre facilities are detailed below). The rate schedule is rather complex because with a timesharing system users share systems facilities. A flat time rate for a job would not be appropriate and charges are made therefore only on actual usage of facilities.

Separate rates are defined for processor time, memory space, input and output, file storage, etc. It will be noticed that from 1.3.78 no charge will be made for the length of terminal connect time. Users are encouraged to make effective and economical use of terminals and not abandon them while remaining logged into the system, otherwise it may be necessary to introduce time-out procedures during busy periods.

Since several jobs are run almost simultaneously within the PDP-10 (each job being executed in turn for a short period of time, for example, 20 milliseconds), it would be impossible to manually record system usage of a particular job. Accounting information for processor time and on-line file usage is therefore recorded as the user job runs. Spooling charges, principally for printing, (which may be incurred before or after the job execution) are determined at the time of spooling. These, together with charges for mounting structures and other miscellaneous charges, are processed each night and reduce the authorised expenditure limit on each account for expenditure control purposes. The charging information is accumulated for monthly billing.

Expenditure Control

The balance of account which is printed each time the user logs in reflects the status of the user's charge code following its last update.

A cost limit based on the user's estimate of the cost of the run about to be initiated, and which is less than the balance of the account must be specified for each job run.

Charges are accumulated incrementally during the run and when the cost limit is exceeded, the job stops. At this point the interactive user has the option of extending the run limit (up to the balance of the account) and continuing. A batch job however, would normally terminate.

For a Batch job, limits can also be set on the amount of CPU time consumed and line printing or plotting output produced. A terminal user may monitor the progress of a job and stop it if it appears to be looping.

If a user does overspend his authorised amount, the charges are still payable and the system will not permit the user to Login again on subsequent days until the account is placed in credit by a further order.

Analysis of Charge Information

For some users the information on the monthly bills is not sufficient for management analysis, control of assignments or distribution of charges over various internal accounts. A facility exists which allows additional detailed charging information to be recorded (obviously at the expense of additional overheads). For further details, contact the Accounting Supervisor.

CHARGE RATES

This section outlines the charge rates for services available from the Prentice Computer Centre and the prices of items which may be purchased. Please note that although these rates and prices are correct at the time of publication, they may have to be reviewed and changed at any later date.

Listed below are the base rates for use of the system. In most cases these rates will be modified by various factors, particularly the user type charging factor given in (a) below. *Certain rates are not subject to this factor. They are indicated by (*)*.

PDP-10 Computer Base Rates

Item	charge per	base rates \$
1. Processor time and memory space		
processor time	minute	1.10
memory space	Kwds	.132
(from 1.3.78)		.10
2. Input/Output		
card reading	100 cards	.05
card punching	100 cards	.30
paper tape reading	metre	.10
paper tape punching	metre	.20
file I/O	block	.0005
plotting (11" plotter)	minute	.04
(36" plotter-time)	minute	.08
(36" plotter-paper)	metre	1.00
line printing	page	.018
use of job slot	hour	.80
(to be discontinued from 1.3.78)		
public terminal	hour	.80
3. File Storage		
storage (on-line)	blk*day	.0002
(archival)	1000	.05
	blk*day	
4. Device Setup		
setup of printer for non-standard stationery		1.00
setup of digital plotter		.60
mounting of disk pack		1.00
mounting magnetic & DECTapes		.40
5. Device Usage		
assign time for disk drive	hour	4.00
assign time for mag tapes	hour	3.00
assign time for DECTapes	hour	.40
access to DECTape through FILE		.40

6. Device Rental

private disk pack		
hire*	month	20.00
capital contribution*		400.00
(for 3 year availability)		
magnetic tape		
hire of 2400 ft.*	month	2.00
hire of 1200 ft.*	month	1.00
storage of private tape*	month	.50
DEctape		
hire*	month	1.00
purchase and*	each	18.00
certification		
storage of private tape*	month	.50

7. Other

Retrieval of file by Centre*	per file	5.00
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(a) User Type Charging Factors

Users fall into three groups which may be classified as follows:

- (i) Internal users are Departments of the University of Queensland and Divisions of Griffith University. They are charged at the base rate.
- (ii) High Schools and other approved institutions are charged at 1.5 times the base rate.
- (iii) External users are all other users not included in the above classes. They are charged at 2.7 times the base rate.

(b) Priorities

Batch jobs and spooling functions can be assigned a priority code in the range 1 - 62. This code determines (with other factors) the order in which the system selects jobs to be executed, jobs with higher codes being given precedence over jobs with lower codes. If no code is specified, the value 10 is assumed as standard. The following table gives the factors by which the standard rate is multiplied, for the priorities used.

priority code	pricing factor	nominal service
1 - 2	.25	Weekly turnaround.
3 - 4	.5	Overnight turnaround.

5 - 9 .7

Better than overnight turnaround but processing does not commence until after 1800 hours.

10 1.0

One or two hours turnaround depending on load and size of job. *The normal priority if a user omits the priority switch.*

11 - 20 1.5

21 - 40 2.0

41 - 60 3.0

61 - 62 4.0

)
) Super
) Priorities.
)

Note:

- 1. For terminal users priorities are applied to spooling operations only.
- 2. The lowest priority rate does not apply to printing and plotting functions. If an attempt is made to use priorities 1 and 2 for these functions, the system will automatically change the pricing factor to that for priority 3 and 4.
- 3. Since punching of paper-tape or cards is essentially an off-line process, priority has no real meaning and no reduction is given for lower priority requests.
- 4. Card reading, device setup and assignment and other consumable items are charged at normal rates at all times. An exception is the connect time fee for private disk packs which is 0.5 times the rate after 6 p.m.

(c) Deadlines

Some spooling functions provide a **deadline** option which enables the user to specify the time by which a job must be completed.

This is implemented simply by the system increasing the job priority as the deadline approaches, until the priority is so high that the job is executed. Hence no exact specification of the charge for a given deadline job can be given.

(d) Time of Day

After certain hours, terminal users will be charged at less than the normal rate for interactive work.

Normal rate from start of day shift to 6 p.m.

70% of normal rate for jobs logged in from 6 p.m. to 7.30 p.m.

50% of normal rate for jobs logged in from 7.30 p.m. to midnight

50% of normal rate for jobs logged in during a weekend (when a weekend service is available)

Spooling is always charged according to the priority the user allocates.

(e) Consultations

It has been approved that a charge be made for consultations at the rate of \$12.00 per hour. This charge is levied at the discretion of the Prentice Computer Centre.

(f) Contract Programming Rates

The Prentice Computer Centre offers a programming service to users. The service has advantage to academic sections. Rather than employ a part-time programmer, they can use the pool of professional staff at the Centre. The charge rates approved by the Prentice Computer Centre Management Committee are:

Internal: (that is user category i of (a) above)

- (i) Programming and Systems work for projects involving 25 hours or less of continuous work, or for projects not of a continuous nature \$12.00 per hour.

- (ii) Programming and Systems work for projects of a continuous nature greater than 25 hours the actual salary costs of the staff involved (based on a 230 day year) plus a 15% management fee.

External: (that is both categories ii and iii of (a) above)

- (i) Programming and Systems work \$20-25 per hour
- (ii) Advanced Programming and Systems work \$25-30 per hour

(g) Data Preparation

The following hourly base rates are charged. The User Charging factors given in (a) above are also applied to the data preparation base rates.

Facility	Base Rate
Keypunching	\$5.40
Interpreting	\$5.40
Verifying	\$4.30

As a rough guide to estimating punching costs, typical punching rates are 300 cards per hour for Fortran or numeric data up to 80 columns. Prospective users should note that keypunching rates can be influenced greatly by the layout of the forms and the clarity of the data entered thereupon. Costs may be reduced by prior consultation on forms design etc. through contacting the Systems Analyst - User Services.

Advance bookings can be made for data preparations services. Details of booking arrangements have been given earlier.

(h) PDP11/34 Maintenance and Support

The Centre offers a maintenance service for PDP11/34 equipment as follows:

- (i) Supply of spares only at the cost of the spares plus 15% to cover administrative costs; or
- (ii) A complete preventative and remedial maintenance service including the cost of spares used at a rate depending on the equipment, but around 7.5% of the capital value per annum; or
- (iii) An engineering consulting service to provide your technician with assistance on diagnosis, difficult problems, interfacing other equipment, etc. Actual staff cost plus 15%.

The Centre will be responsible for software support to 11/34s as follows:

- (i) Distribute and maintain the standard software at no charge.
- (ii) Modify standard software for a user requirement, staff cost plus 30%.
- (iii) General programming support, staff cost plus 15%.

(i) Miscellaneous

Please note that these prices are correct at time of publication but may change at any later date.

		charge per	cost
			\$
coding pads	small	pad	1.25
	large	pad	2.30
Cards	data	box (2000 cds)	7.60
	Fortran	box	7.60
	MONECS	box	15.00
H.S.P. binders		each	1.70
Order form pads		each	1.95
printer layout pad		pad	0.50
printer paper	11"x15"	1000 pages	9.00
	2part	1000 pages	21.74
	4part	1000 pages	50.80

Parastick labels

one wide	page (11 labels)	0.09
three wide	page (33 labels)	0.14

(j) Minimum Charge

A minimum charge of \$20.00 per month applies to charge codes for users other than those from the University of Queensland and Griffith University.

Conditions of Use

As a matter of formal procedure, the Prentice Computer Centre offers its services subject to a set of conditions of use and liability. These are detailed below and are also printed on the back of each order.

The system may only be used in the manner described in the various manuals and other documentation issued by the Prentice Computer Centre and at the charge rates which apply. The listing of systems software is not permitted except with the approval of the Director.

The Prentice Computer Centre recognizes that no operating system can be made proof against intelligent attack and monitoring programs are run periodically to ensure that the system is being used correctly. Should cases be found where the system is not being used in the accepted manner, this may result in the immediate withdrawal of service and, if appropriate, such further action as the University considers warranted.

These points on conditions of use are raised as a matter of formal administrative procedure. The Centre's attitude is to encourage cooperation between Centre and users so that we can assist each other in maintaining a first class computing service on the campus.

**CONDITIONS OF USE AND LIABILITY
STATEMENT**

The following conditions of use are the conditions of the contract constituted by the University's acceptance of the order on the face hereof.

1. In these conditions

(i) "user" means a person who orders work.

(ii) "authorized officer" means the person, whether a member of the staff of the university or not, who accepts responsibility for the payment for work.

(iii) "work" means each job undertaken by the University in fulfilment of the order on the face hereof.

2. The University shall be under no liability for breach of contract or in part or as to any matter or thing of whatsoever nature arising out of or in connection with its undertaking work, save and except as provided in these conditions, and in particular and without limiting the generality of the foregoing, the University will not in any circumstances be liable for any incidental or consequential damages of any nature or kind whatsoever.

3. The user and authorized officer each acknowledges that no warranty, condition or representation on the part of the University has been given or is to be implied from anything said or written between the parties or their representatives or contained in any publication of the University or the Prentice Computer Centre, and any warranty, condition or representation, including but not limited to any warranty, condition or representation as to the liability of the University is hereby expressly excluded.

4. The University will instruct all personnel engaged in the Prentice Computer Centre that they must protect the confidentiality of information and material furnished by users but shall be under no liability whatsoever in the event of any improper disclosure by such personnel.

5. The University will be under no liability for any loss or damage resulting from or in connection with delay in proceeding with or completing work.

6. Work is undertaken by the University on the condition that the user warrants that the work can be performed without the infringement of any patent or breach of any copyright.

7. The user acknowledges in relation to software products supplied to the University under licence, e.g. Calcomp, SPSS, IMSL, that the Prentice Computer Centre may disclose such external and interface details of such software as may be reasonably necessary to their proper use only on condition that the user agrees that the software products or any part thereof are the property of the supplier and are proprietary to the supplier and that the user shall hold the software products or any part thereof in confidence for the supplier. The user agrees accordingly.

8. The user shall within fourteen (14) days of the completion of the work notify the Director of the Prentice Computer Centre in writing of any error resulting or alleged to have resulted in incorrect or lost results. Except for any error so notified, the work shall be deemed to have been accurately and correctly performed.

9. Subject to paragraph 8, where notification of error has been received and it is established that a notified error has caused incorrect or lost results, the University will undertake a re-run of the work at no extra charge, provided that a re-run is reasonably practicable. In the event that a re-run is not reasonably practicable the University will refund to the user an amount not more than the amount paid by the user to the University as the cost of the run in which the error was detected but shall be under no other or greater liability.

10. If a notification is in respect of an error attributable to a fault which has been reported by the University in any of its Prentice Computer Centre publications or by written memorandum to the user, or is attributable to failure by the user to conform with the procedures set out in the appropriate supplier's software manuals with such additions as are notified from time to time by the University in Prentice Computer Centre publications, or by memoranda to the user, the University will be under no liability to re-run or make any refund in respect of that error.

11. The University shall be under no liability to re-run or allow credit where an error in results has resulted from an error of judgement or interpretation by Prentice Computer Centre personnel.

12. The University will be under no liability to re-run or allow credit for any loss resulting from the failure of the user adequately to safeguard himself against the possibility of loss of information within the Prentice Computer Centre systems.

13. Without limiting the effect of any of the above conditions, if any material furnished by the user is lost, destroyed or damaged as a result of neglect on the part of personnel employed in the Prentice Computer Centre or breakdown or fault in the machinery, and the user provides the University with all source information in machine readable form necessary to make restoration of that material reasonably practicable, the University will restore the material.
14. Nothing in the above conditions will require the University to accept any liability or undertake any re-run when incorrect results, loss of results or material, or destruction of or damage to material occur as a result of or in connection with the use by the user of other than the supported facilities notified from time to time in Prentice Computer Centre publications, or the use of supported facilities in other than the manner approved by the University.
15. The user and authorized officer jointly and severally hereby agree to indemnify and forever save harmless the University and each and every member of its staff against all actions, claims or demands for infringement of patent or breach of copyright which may be brought or made against the University or any such member of its staff arising out of or in connection with the performance of the work.

HISTORY

The need for a University to have digital computing facilities to support Research and Teaching as well as an adjunct to the various administrative functions was recognised in the late 50s and due principally to the initiative of Professor S A Prentice of the Department of Electrical Engineering, a General Electric GE-225 computer was ordered. In August, 1962 the computer was delivered and installed in the present computer room. This was the first large scale computer to be installed in Queensland and its purchase by the University was only made possible by the support of a number of outside organizations who then recognised the value that computing would have to them and the University, and who were prepared to assist the University financially in purchasing the computer. It is of interest to note that this computer was in regular use until 1976; it was decommissioned on 16th March 1977 and presented to the Queensland Museum.

The newly established computer centre continued under the control of the Department of Electrical Engineering and from this beginning it continued to grow; equipment was augmented and much was done through courses to expand the application of computers throughout the University and the technical community at large. Formal teaching of Computer Science was initiated through the post-graduate Diploma of Automatic Computation.

Substantial growth was experienced in use of the GE-225 and in 1966, when saturation was approaching, planning was under way for its replacement. It might be noted here that almost since its inception, the Centre has experienced an annual growth rate of 30-40% and this despite the vicissitudes that beset University financing! In 1968 the initial PDP-10 system was delivered by Digital Equipment Corporation of Australia and was gradually phased into service. 1969 saw the formal recognition of the discipline of Computer Science by the establishment of a Department of Computer Science and Professor G A Rose was appointed to the inaugural chair of the new department. Control of the Computer Centre was transferred from the Department of Electrical Engineering to the new department.

In late 1969, recognizing the essentially service nature of the computer centre as opposed to the functioning of an academic department, the computer centre was separated from the Department of Computer Science and established as an independent entity. In November 1972, Mr A W Coulter was appointed as Director of the Computer Centre. 1973 saw the making available of funds which allowed expansion of the PDP-10 to realise its full potential. 1974 saw the extension of the scope of the Centre to provide computing facilities to the newly established Griffith University sited at Nathan. This year also saw the establishment of a User Service group, giving recognition to a long felt need, and enabling the Centre to do more detailed work for users than was formerly possible.

In recognition of the importance of the role played by Professor Prentice in establishing the Centre, the Senate in 1975 granted to it the title "Prentice Computer Centre".

1976 saw expansion of the original PDP-10 system to its practicable limit and the installation of several remote batch stations. In the latter part of the year a specification was issued seeking public tenders to provide enhanced capacity to the Central facility and allow eventual replacement of the existing equipment. A detailed assessment was made of tenders by a working party of the joint policy Committees of the University of Queensland and Griffith University, and on 28th July, 1977 a contract was signed with Digital Equipment

Australia for the supply of a PDP 1090 KL10 system. This system was delivered in December 1977 and should be operational in March 1978.

TELEPHONE NUMBERS

	Direct Number	Queensland University Extension
University of Queensland	377 1111	
Director (Mr Alan W Coulter)	377 2189	2189
Secretary (Miss J M Dixon)	377 2189	2189
Senior Systems Analyst (Mr J D Noad)	377 3017	3017
Systems Analyst (Mr J W Barker)	377 3016	3016
Systems Analyst - Software (Mr C C de Voil)	377 3023	3023
Systems Analyst-User Services (Mr R Perrott)	377 3022	3022
Engineering Development (Mr G Rees)	377 3288	3288
Operations Manager (Ms D M Ball)	377 3471	3471
Accounting Supervisor * (Ms C Walker)	377 2188	2188
Data Prep. bookings	377 3963	3963
Hawken service area	377 3024	3024
Duty Programmer	377 3025	3025
Statistics Consultation (Mr C McGovern)	377 3963	3963
Computer Room * (Drive Bookings)	377 3015	3015
Commerce service area	377 3963	3963
Griffith service area	275 7323	88-7323
Computer Office *	377 3018	3018
Engineering Services (Mr G Jerrard)	377 3288	3288
Maintenance Technicians	377 3472	3472
	377 3939	3939
Mini/Micro Support Group (Mr C Lythell)	377 3940	3940
Purchasing Officer (Mr D R Anderson)	377 3166	3166
Computer System Status (Recorded Message Service)*	377 3101	3101

* Also for after hours queries

**This brochure has been authorized by the Director
of the Prentice Computer Centre.**