

# PRENTICE COMPUTER CENTRE

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



## NEWSLETTER

N-294

November 1984

### CONTENTS

- 1.0 Newsletter Summary.
- 2.0 Distributed Computing.
  - 2.1 The PDP 11/73 Processor.
- 3.0 Software Maintenance.
  - 3.1 1022 Expires.
  - 3.2 NAG — Description of Outstanding Errors.
  - 3.3 XTEC Modifications.
  - 3.4 Increased Data Space for GLIM.
- 4.0 Engineering & Communications.
  - 4.1 KL System.
  - 4.2 KA System.
  - 4.3 IBM.
- 5.0 Operations.
  - 5.1 Expiry Date on Project Programmer Numbers.
- 6.0 Software Development.
  - 6.1 Newsletters On-Line.
  - 6.2 New Print Command for Griffith Users.
  - 6.3 Additional Statistical Analysis System (SAS) Products.
  - 6.4 SAS Publications.
- 7.0 User Services.
  - 7.1 Information Concerning Courses.
- 8.0 Miscellaneous.
  - 8.1 Wanted — Second Hand Microcomputer.

Authorized by the Director of the Computer Centre

## Principal Service Centres

### Extensions

Operations Manager	3471
Contract Programming & Feasibility Studies	3944
System Status Automatic Answering	3101
General Enquiries & Course Enrolments	3018
Training & Courses	3021
Dial-up modem numbers	(300 bps) 3772977 (1200 bps) 3772922

## Consulting

PROBLEM AREA	MAIL BOX	NAME AND EXTENSION
<b>Operations and Programming</b>		
Accounts	ACCOUNTS	Carol Walker 2188
Cobol	COBOL	Porl Gordon 2953
Commands, system use and probs	COMMANDS	Ian Otto 4075 Greg Lehmann 3020
Database	DATABASE	Brett Peterson 2836 Marie Bultreys 2835
Fortran	FORTRAN	Noela Meier 2952
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IBM HELP Desk	CHELP	Ellen Kraayvanger 3941
Micros	MICROS	Peter Akers 4166
Network	NETWORK	Bryan Claire 4078 Arthur Hartwig 4079
Operations	OPERATIONS	Senior Operator 3212
PDP-11 Software	PDP11	Danny Smith 4166
Program Library	LIBRARY	Lee MacDonald 3943
Statistics Packages	STATISTICS	Barry Costin 3022
Text processing, Typesetting	TEXT	Andrew Broughton 2837 Porl Gordon 2953
Non-specific problems	OPERATIONS	Senior Operator 3212
<b>Engineering and Maintenance</b>		
Development and communications	ENGIN	Graham Rees 3288
Mini/Micro support	ENGIN	Alan Langdon 4018 Martin Nicholls 3942
Terminal, line & mini probs	CCDCHELP	Maralyn Kenley 3938

### Griffith University:

Consulting	7682
Computer Services	7560
Computing Co-ordinator	7561

### Terminals, CDN & Equipment Pricing

For prices on microcomputers, terminals, line charges, computer bits and pieces, type HELP PRICES on your terminal. This will provide appropriate menus.

## **1. Newsletter Summary**

This newsletter covers a fairly wide range of topics which should be of interest to a broad spectrum of our users.

- A report on the 11/73 shows it can provide a significant upgrade path for 11/23 machines.
- A new version of 1022, errors in NAG and modifications to the XTEC editor and GLIM are detailed.
- Additional products for graphics, econometrics and operations research have been added to the SAS statistical software on the IBM 3083, and a lot of detail on SAS documentation is given.
- An Interactive Financial Planning System (IFPS) is now installed on the IBM 3083 for user evaluation. We would like to receive your comments on it.
- All current newsletters are now available on-line on the IBM 3083, KL-10 and VAX 11/780 so that users can read and selectively copy them at their terminals.
- Additional lines have been installed to the IBM 3083 to improve user access.
- Users are once again advised that all KL-10 PPN's and VAX UIC's expire and will be cancelled on 24 December unless written advice to the contrary is received.
- Details of courses to the end of the year are given.

*John Noad  
extension 3017*

## **2. Distributed Computing – Geoffrey Dengate, ext. 3391**

### **2.1 The PDP 11/73 Processor**

Just how fast is that 11/73?

Finally, the 11/73 processor has arrived in Australia. Now that we are on the eve of the introduction of this latest PDP-11 processor, many people are becoming interested in the gains they will receive, if they purchase this hot little item. The 11/73 provides a simple upgrade path for the 11/23 and 11/23+ based systems. It also enhances the possible upgrade path for the 11/34 based systems, overcoming the 256KB limitation on memory size.

The advantages the 11/73 has over the 11/23 are Kernel and User mode Instruction/Data space, Supervisor mode operation, and an increase in processor speed. (I/D space and Supervisor mode are only supported by RSX-11M-Plus, and will be described in a future article).

Recently, a computebound benchmark test was made on the various processors, running various operating systems. In each case, there was no load on the system, so that the program had complete control (as far as possible) of the processor, and was memory resident throughout the operation.

The program was: (with original credits going to Mike Gladwin, Physics)

```
PROGRAM BENCH
DIMENSION A(4000)
TI = SECNDS(0)
DO 25,I= 1,50
DO 20,J= 1,4000
A(J) = SIN(J*3.14159/360)
20 CONTINUE
25 CONTINUE
TS = SECNDS(T1)
TYPE *,T2
END
```

The results were:

	11/23	11/34	11/73
RT-11 V5.0 F4	181s	115s	60s
TSX+ V5.0 F4	214s	131s	62s
RSX11M V4.0 F77	380s	207s	81s
RSX11M V4.0 F4	1101s	706s	317s

The conclusion is that, under this kind of test, the 11/73 is approximately 3.25 times faster than the 11/23, and approximately 2 times faster than the 11/34.

One disadvantage of the 11/73 (which should be labelled a 'GOTCHA') concerns programs developed on the 11/23 or 11/23+. Under these processors, any odd addresses used for word operations are truncated to an even address before proceeding with the instruction. This causes programs to work correctly, even though they contain a serious bug. However, the 11/73 processor supports odd address traps, causing all your incorrectly written software to abort. (Note: This only applies to user written software. The operating systems function correctly.) Users with a PDP-11/34 need not worry, as the 11/34 already supports odd address traps.

Danny Smith  
extension 4166

### 3. Software Maintenance - Ian Burgess, ext. 4074

#### 3.1 1022 Expires

The version of 1022 currently available on SYS: (version 115B) expires on the 31st December. Consequently the version currently on NEW: (version 116A) will be moved to SYS: on the 1st December. Users are advised to test their usage under

V116A before the 1st December to ensure a smooth transition. Users should obtain a copy of the file 1022.BWR on DOC: before testing however. This file lists incompatibilities between V116A and previous versions of 1022.

A list of online documentation for V116A can be obtained by typing the command HELP NEW:1022.

*Lee MacDonald*  
*extension 3943*

### **3.2 NAG – Description of Outstanding Errors**

The following errors apply to the NAG libraries on the KL and VAX:

<b>Routine</b>	<b>Description of Error</b>
E045BF E04KBF	The Hessian factors, HESL and HESD, do not always approximate the factors of the actual Hessian at the solution, when iterations are performed close to the final solution.
F02GJF	Incorrect results may be obtained on very rare occasions when intermediate calculations result in two variables of equal magnitude and opposite sign.

Any problems concerning these routines may be referred to me.

*Lee MacDonald*  
*extension 3943*

### **3.3 XTEC Modifications**

Some new features have been added to XTEC (eXtended TECo). They are as follows:

- <expr> = = = . to cause the value of <expr> to be typed out in Hexadecimal (as in VAX TECO).
- :<expr>\ to insert at "." the octal representation of the value of <expr>.
- :\ to return the value of the octal number which follows ".".

In addition, two bugs in XTEC have been solved. The first involved a failure in the "\_" command to properly recover from a ?TECYCA error, and it has been solved by forcing the command to abort, even in its colon-modified form. The second problem resulted in the output file of an EB (or monitor .XTEC filename) command being placed in the UFD rather than in the default path, where the input file came from another UFD. These commands will now output to the default path, in such a case.

*Paul Wilson*  
*extension 3023*

### **3.4 Increased Data Space for GLIM**

For those people who use GLIM, the general linear modelling program, there is a new version called GLIM3 available on STA:.

Functionally, GLIM3 is exactly the same as GLIM, the only difference being that GLIM3 allocates three times the space for the storage and manipulation of data. This enables GLIM3 to handle larger sets of data than is currently possible with GLIM.

GLIM3 may be run by entering the following command:

`.R STA:GLIM3`

*Barry Costin  
extension 3022*

## **4. Engineering & Communications Services – Graham Rees, ext. 3288**

### **4.1 KL System**

A failure in a set of memory logic boards resulted in the KL system being out of service for approx. 1½ hours on Wednesday 10-OCT-84. Otherwise the system has been stable.

*Graham Jerrard  
extension 3168*

### **4.2 KA System**

The two fixed head discs on this system are a continuing sink for maintenance effort. It is becoming increasingly difficult to keep their error rate down, but with the decommissioning of the KA system at the end of this year, major reworking is not warranted. Come December they can be given a well earned permanent rest.

*Graham Jerrard  
extension 3168*

### **4.3 IBM**

Recently a further 68 IBM ports were connected to the MICOM. There are now 112 ports to the IBM available to users and a further 28 reserved for development and special use.

*Graham Jerrard  
extension 3168*

## **5. Operations – Sandra Campbell, ext. 3471**

### **5.1 Expiry Date on Project Programmer Numbers**

On 24 December each year all PPN's on the DEC-10's and UIC's on the VAX expire, unless the Centre has been notified in writing that a PPN/UIC is required for another year. The term "expire" means that all files owned by that PPN, both on-line and off-line, are deleted, any balance of commitment is taken to 0 and PPN and charge code are deleted from the system.

As you can imagine then, it is imperative that if you intend to keep using your account for the following year you must complete the "change of expiry date" form, prior to 24 December each year. Separate forms for KA/KL and VAX users are at the Accounts office and attached here.

We do this not to make life difficult for you, but merely to keep disk space clear and overheads down. Each year many people leave the University, go away on the Special Studies Programme or finish post graduate research and omit to notify us that they have finished with their account. Expiring accounts is our way, then, of keeping the system operating efficiently for the user's continued benefit.

Carol Walker  
extension 2188

## **6. Software Development – Allan Woodland, ext. 2935**

### **6.1 Newsletters On-Line**

For years now, every month, you've waited eagerly for your copy of the Prentice Computer Centre Newsletter. Well now there's a great new development so you can get in a little early.

As soon as the newsletter is ready to be phototypeset and sent to the printery we run a process which makes an on-line copy of it available on the IBM 3083, the VAX 11/780 and the KL-10 computer systems. This means that all you have to do is log onto any of these systems, give an appropriate command on that system, and you can peruse the newsletter even before the printer sees it.

To look at an on-line copy of the newsletter you may type, edit or print the file on any of the computer systems. On the IBM system you can also use the BROWSE utility to easily move through the file in either direction viewing a screenful of information at a time. It is intended that at least the latest two issues of the newsletter will be available on-line, but this may change depending on disk space considerations, and your demands on availability.

On the IBM 3083 system the files are currently stored on the TOOLS disk – the one you generally have accessed as your 'G' disk, and have the filetype of NEWSLETR. You can use BROWSE or XEDIT to view the files directly, or you could type 'FILELIST \* NEWSLETR \*' to get a list of all available newsletters displayed.

Alternatively, type 'NEWSL'. This will display all available newsletters (as in FILELIST) and let you pick the issue you want. If you already know which issue you want to look at just type 'NEWSL number', where number corresponds to the number of the issue you wish to view. If you should lose this copy of the newsletter (the one you're reading now) type 'NEWSL ?' for online assistance in using the command.

When you use the NEWSL system to select from the list of available issues, you can either use PF10 (BROWSE) to view the file, or PF11 (marked NEWSL, but in fact using IOS3270). Which one should you use? If you want to be able to search for something in particular within an issue, use BROWSE(PF10). If you just want to scan through it, use IOS3270 (PF11).

If you are a KL-10 user, you have the option of typing or editing the issue you wish to view. The files are stored on DOC: and have names of the form Nnnn.MEM, where 'nnn' is the issue number. Thus, to view issue number 293 you could type either 'TYPE DOC:N293.MEM' or 'EDIT DOC:N293.MEM'.

If you use the VAX 11/780, the files are stored on SYSSYSDEVICE:[011055] as multiple versions of NEWS.MEM. A new command 'NEWSLETR' has been implemented, which can be abbreviated to 'NEWS', to type the latest newsletter issue. If you wish to edit the file (in order to search for a particular item), or to view back issues you must specify the command in full (e.g. EDIT SYSSYSDEVICE:[011055]NEWS.MEM;2).

Andrew Broughton  
extension 2837

## 6.2 New Print Command for Griffith Users

In a previous newsletter article a method for requesting that your files from the IBM system be printed on the line printer located at Griffith University was discussed. Initially the procedure you had to follow for doing this was rather complex (and also difficult to understand). Now a new procedure has been implemented which will make things MUCH simpler for users of the IBM 3083 who wish to have their output printed at Griffith University. This is the GPRINT command (minimum abbreviation GPR).

The syntax for this command is:

```
GPrint fn ft <fm> <(<options...< >>>
```

or GPrint

The GPRINT command can be used to either print files on the Griffith University line printer, or to spool your virtual printer so that all subsequent PRINT operations will cause your output to be directed to that printer.

GPRINT works by simply issuing CP SPOOL and CP TAG commands to direct printer output to the Griffith University printer via RSCS and the UQVAX system, and then issues the CMS PRINT command, so it has similar syntax to the CMS PRINT command, with the same options permitted.

When you give the GPRINT command and specify a file, your virtual printer status is saved, the file is queued for printing, then the status is restored to it's original value.

If you issue the GPRINT command without any parameters, your virtual printer is spooled to the Griffith University printer and left in that state. All subsequent output will then be sent to that destination until you change the state of the spool printer again. To revert to normal spooling after GPRINT is used without parameters, you can issue the command 'CP SPOOL PRINTER OFF'.

Andrew Broughton  
extension 2837

## 6.3 Additional Statistical Analysis System (SAS) Products

Following evaluations of several SAS products for the IBM 3083 (see September newsletter N-292), it has been decided to keep the following:

- (1) SAS/GRAPH – device intelligent graphics
- (2) SAS/ETS – econometrics
- (3) SAS/OR – operations research

On-line information on these packages will be made available in the near future.

We decided not to retain SAS/FSP (Full-Screen Product including spreadsheet, editing and SAS data entry facilities) but we are currently evaluating a financial modelling package which is reported to be extremely powerful. Refer to article on IFPS.

Allan Woodland  
extension 2935

## 6.4 SAS Publications

Some basic manuals for SAS products may be available from the Bookshop. All of their publications are available directly from:

SAS Software Pty Ltd  
G.P.O. Box 4345  
Sydney NSW 2001  
Telephone (02)235 2199  
Telex AA71499

Relevant sections of their current price list are reproduced here.

### Basic Manuals

SAS Introductory Guide, Revised Edition . . . . .	\$14.00
Gives simple step-by-step directions for new SAS users.	
SAS Users Guide: Basics, 1982 Edition . . . . .	\$28.00
The basic reference manual documents all information needed to use SAS.	
SAS Applications Guide . . . . .	\$20.00
Describes common data-handling applications with a variety of examples.	
SAS Programmers Guide . . . . .	\$20.00
Provides directions to programmers for writing their own SAS procedures.	
SUGI Supplemental Library Users Guide, 1983 Edition . . . . .	\$25.00
Describes user-contributed procedures to the SAS supplemental library.	
G-103 Master Index to SAS Documentation . . . . .	\$10.00
P-127 Enhancements to the SAS MACRO Facility . . . . .	\$ 8.00

### Statistics

SAS Users Guide: Statistics, 1982 Edition . . . . .	\$25.00
Documents the SAS Statistical and Matrix procedures.	
SAS For Linear Models . . . . .	\$25.00
A guide to the ANOVA and GLM procedures.	
A-102 SAS Regression Applications . . . . .	\$15.00
A-106 Probability Plotting . . . . .	\$ 5.00
A-108 Cubic Clustering Criterion . . . . .	\$10.00
P-131 Statistical Macros: %PRINQUAL, %CONJOINT and the OPSCAL function . . . . .	\$10.00
R-101 Tests of Hypotheses in Fixed Effects Linear Models . . . . .	\$ 5.00
R-102 Computing Expected mean Squares . . . . .	\$ 5.00
R-103 Least Squares Means in the Fixed Effects General Linear Model . . . . .	\$ 5.00
R-104 A Simplified Algorithm for the W-Transformation in Variance Component Estimation . . . . .	\$ 5.00
R-105 Computing MIVQUEO Estimates of Variance Components . . . . .	\$ 5.00
R-106 The Sweep Operator: Its Importance in Statistical Computing . . . . .	\$ 8.00

T-103 A Compiler that Generates Analytical Derivatives ..... \$ 5.00

**SAS/ETS**

SAS/ETS Users Guide ..... \$25.00  
Documents the econometric, time-series and financial reporting library.

**SAS/GRAPH**

SAS/Graph Users guide ..... \$20.00  
Documents the SAS/GRAPH procedure library.  
P-121 SAS/GRAPH 82.2 Changes and Enhancements ..... \$15.00  
A-107 Creating Your Own SAS/GRAPH Map Data Sets With a Digitizer ..... \$ 8.00  
D-101 SAS RAPH World Map Data Sets (with tape) ..... \$65.00  
D-104 Map Data Sets., European/Asia/Pacific Maps (with tape) ..... \$200.00

**SAS/OR**

SAS/OR Users Guide ..... \$20.00  
Documents procedures for business planning and scheduling using operations research tools.  
P-134 Changes and Enhancements to SAS/OR 82.4 ..... \$ 5.00

**Training**

SAS Views

The SAS Training Course notes are contained in these manuals.

- Basics ..... \$35.00
- SAS Processing (Advanced course) ..... \$35.00
- SAS/GRAPH ..... \$35.00
- Computer Performance Evaluation ..... \$28.00
- Regression and ANOVA ..... \$28.00

SAS Video Training Basics 100-Series Workbook ..... \$15.00  
SAS Video Training Colour Graphics 100-Series Workbook ..... \$18.00  
SAS Video Training Colour Graphics 100-Series Instructional Guide ..... \$22.00

**CMS Environment**

SAS Companion for the VM/CMS Operating System, 1983 Edition ..... \$18.00  
The tutorial and reference manual for using SAS under VM/CMS.

SAS Institute Publications are copyrighted and may not be reproduced.

All prices are FOB SAS Software Pty Ltd. Shipping charges will be billed as a separate item on your invoice.

No warranty, expressed or implied, is given by the Prentice Computer Centre for the correctness of this list.

Allan Woodland  
extension 2935

**6.5 Interactive Financial Planning System (IFPS)for IBM 3083**

The above package from Execucom Systems Corporation has been installed on the IBM 3083 for a trial period. The following overview is reproduced from an IFPS Product Profile.

### **"Model Building**

To use IFPS, the user describes the model with the appropriate language for the application. This is accomplished by entering a series of statements defining the source of data for rows and columns and how they are to be manipulated computationally. The user may call special subroutines, insert comments, define computations between lines or columns, establish conditional computations, utilize a broad range of forecasting functions, and perform risk analysis and other measurement functions.

"Functions are provided for special computations such as present value, benefit/cost ratio, discounted cash flow, and internal rate-of-return calculations. In addition, a series of mathematical functions are available for use. These include a function for piecewise linear interpolation, a step function, a logarithm function, an exponential function, three types of rounding functions, and maximum, minimum and absolute value functions.

"Subroutines are used to request computations that return values to more than one variable. Specifically, routines are available for straight-line, sum-of-years digits, declining balance and Capital Recovery Act depreciation as well as amortization. It is also possible for the user to define his own subroutines with unlimited possibilities.

"A customizing feature of the IFPS modeling language is called micro substitution. This provides the capability of performing text substitutions in models or reports at execution time. The facility has a wide variety of applications including title definition, variable definition, or adaptation of the model to a very time-dynamic data. Predefined micros provide date and time information in several different formats. Extensive diagnostic error messages and a diagnostic command, ANALYZE, assist users in setting up models and system relationships. The HELP facility allows the user to request an explanation and example of any IFPS command.

"Once the model is defined, the solution can be displayed by the default report writer as a common spread sheet.

### **"Model Interrogation**

The WHAT IF command is a way of temporarily changing model variables to study the effect changes will have on the overall result. These may be posed without the need to edit the model. The GOAL SEEKING command finds the value for each regular column for a variable so that the performance criterion is achieved. For example, a performance criterion can be set for *profit*, and the system will find the value for the variable for *gross sales* which achieves the required performance.

"Sensitivity analysis allows the user to examine the response of one or more model variables to a series of changes occurring in another variable.

"Impact analysis allows the user to quickly analyze the impact of changes in different variables on a variable used as a criterion.

### **"Risk Analysis**

An integral part of the IFPS modeling language is the capacity to perform risk analysis using Monte Carlo simulations. This simulation technique solves the problem a number of times using different values from user estimates or distribution functions involved. The values from the distributions are random values following the structure of the distributions. The results from the model solutions are summarized so that the end product is the ability to make probabilistic statements about the analysis. The incorporation of risk analysis into IFPS models requires no restructur-

ing of models. Output of the risk analysis option, in addition to the report, can include a normal approximation table, a frequency table, a table of simple statistics, a frequency-versus-normal table, and histograms of the Monte Carlo data values.

#### **"Presentation Reports**

The Report Generator, as opposed to the default report writer, enables the creation or editing of formal report definitions. Reports can be customized with titles, column headings, page numbers, etc. The sort capability permits reports to present solutions in ascending or descending order. In addition, the report generator can produce graphic output from a model on a terminal or a printer. Default specifications allow the user to generate plots with a single command or to use the plot command language to control the graph size, scaling, plot characters and the axes.

#### **"Data Files**

In the Data File subsystem the user can create, edit, or maintain IFPS data files. Data files are used to hold variable data and relationships for general-use models and allow multi-unit consolidations and hierarchical models. IFPS also allows the use of "not available" data.

#### **"Consolidations**

The Structure subsystem allows the user to describe a hierarchical or network consolidation scheme. The system then automatically performs the consolidation process and produces summary and intermediate reports from predefined report definitions. Modifications in any data file will be automatically noted and subsequent consolidations will recalculate only the affected sections of the structure.

#### **"Command Files**

Command Files are permanent files on which IFPS commands and directives are stored. These stored commands, which can be parameterized, are executed by a single IFPS executive command. Command files allow routine activities to be performed by clerical-level personnel, thereby increasing the productivity of the analyst."

On-line help to invoke IFPS is available by typing INFO IFPS. Execucom has loaned me a few copies of the IFPS User Manual. Please contact me if you would like to borrow one for a short time. As the trial period expires at the end of November, I would appreciate any comments (preferably written) before then.

*Allan Woodland  
extension 2935*

## **7. User Services – Tony Bird, ext. 3944**

### **7.1 Information Concerning Courses**

The schedule of courses for the period November-December is as set out below. (Where necessary, additional courses may be added to the list.)

*Note:* regarding the courses "Introduction to IBM" (4 half days) and "Conversion to IBM" (3 half days):

The "Conversion" course is directed at users with familiarity of some computer system (e.g. PDP-10) and who now wish to make use of the IBM system; the "Introduction" course is intended for new users with no previous computing experience, i.e. it corresponds in function to the "Introduction to PDP-10" course.

One of the two above courses should normally have been completed before attending either the SQL course or the SCRIPT course (just as the "Introduction to PDP-10" course is required before attending courses on PDP-10 packages).

### November

Introduction to PDP-10	November 5-8 4 half days 9-12 each day
Introduction to IBM	November 5-8 4 half days 1-4 each day
Statpack	November 9 1 full day 9-12 + 1-4
Elementary Basic Programming	November 12-15 4 half days 9-12 each day
Conversion to IBM	November 12-15 4 half days 1-4 each day
TECO Editing	November 16 1 full day 9-12 + 1-4
Conversion to IBM (GU)	November 19-21 3 half days 2-5 each day
1022	November 19-23 5 half days 9-12 each day
SQL	November 19-23 5 half days 1-4 each day
Elementary FORTRAN Programming	November 26-30 5 full days 9-12 + 1-4 each day
CAD/CAM	November 26-29 4 full days 9-12 + 1-4 each day

### December

RUNOFF	December 3-7 5 half days 9-12 each day
SCRIPT	December 3-7 5 half days 1-4 each day
SPSS	December 17-21 5 half days 9-12 each day
SAS	December 17-21 5 half days 1-4 each day

**Notes:**

1. All of the above courses will be held in Room G13A – Hawken Building, except those designated (GU) which will be held in the AES Terminal Laboratory, Griffith University.
2. Enrolments for all courses may be made by phoning extension 3018.

*Barry Maher*  
*extension 3021*

**8. Miscellaneous**

**8.1 Wanted – Second Hand Microcomputer**

Wanted – Second hand PDP 11/03 microcomputer or equivalent with VDU and dual floppy disks. Contact Dr P. Jolly on extension 2969.