

PRENTICE COMPUTER CENTRE

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



NEWSLETTER

N-322

December 1988

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Authorized by the Director of the Computer Centre

1. Newsletter Summary

- Mr Alan Coulter had been seconded for two years, effective 1.12.88, to the University Development Office as Director of Development. The Deputy Director, Mr John Noad, will be Acting Director during this period.
- A new version of the Operating System, VM/SP HPO and CMS Release 5.0, will be installed on the IBM3081 (UQVM) before Semester 1, 1989. Major areas of interest are described.
- The Operations Group has had a number of staffing changes over the past few months.
- The Centre has increased basic charges for all systems and hourly charge rates for staff time in line with DEET indices – 8%.
- Users are again reminded about the need to renew computer accounts before 23rd December 1988.
- PCSA (Personal Computer Systems Architecture) is described. PCSA is a strategic initiative of interest to all PC users. The Centre and two Departments have embarked on a pilot project to test, evaluate, and prepare for the release of PCSA to the University community.
- More information is provided about access to the world wide distributed bulletin board USENET NEWS.
- Charges for sending electronic mail to colleagues within Australia and Overseas are detailed. Clients can use ACSnet, SPEARNET, and PSI and the charges are very reasonable.
- The Engineering and Communications Section have produced a number of *FACT SHEETS* about using the network (UQNET). These sheets are available from the HELP DESK.
- The PC Support Group has information on a Commodore Amiga virus, SAS/PC, and some more product evaluations.
- The Personal Computer Teaching Laboratory, Course Room 2, has had a significant upgrade to more powerful UNISYS systems.
- Details of mainframe and PC courses are provided together with information regarding changes to our WordPerfect course offerings.

Geoffrey Dengate
ext. 3944

2. Prentice Computer Centre Organisational Changes

2.1 Director Seconded to the The University of Queensland Development Office

I have been seconded for a period of two years commencing 1.12.88 as the Director of The University Development Office. I will be located at The University of Queensland – Downtown, 400 Queen Street, Brisbane.

The University has, in my view, commenced a new and exciting era of expansion and development. In recent times, our University has been selected to operate key centres of expertise in strategically important areas of growth – Land Information Studies, Mining Engineering, Computer Software Technology, Computer/Communications Networks, Physiology, Biotechnology, Asian Studies (with Griffith University), Tropical Medicine to name some. Extensions have been made to Ritchie Research Building. A new large Engineering Building is being constructed and a new Biological Sciences building has been approved. We are no longer inhibited from generating growth in student numbers.

No doubt there will be initial problems of adjustment and funding but there can be no doubt that The University of Queensland, through the wide range of its teaching and research programmes, is the premier university in Queensland and is poised to be one of the great Australian and world universities.

The *UNIVATIONS* Pavilion at World Expo 88 demonstrated the value of cooperation between universities to publicise the contribution of the Higher Education industry to Australian economic and social development. I hope there will be future opportunities for such cooperation. Nevertheless, it must also be recognised that the new era will bring with it a far greater degree of competition between universities to gain the support from commerce and industry, government and the public at large.

We will all need to play a part in this new era of development for The University of Queensland. We will need involvement and assistance from our students and our graduates as well as from our staff. We must move our message of economic and social value closer to commerce, industry and government. We should strengthen our international associations and particularly our influence in the Pacific Rim.

You will no doubt conclude from the foregoing remarks that I am very pleased and excited to take up the position of Director of Development. A good computer based information system is fundamental to the operation of a modern Development Office and some may gain pleasure from the fact that I will now become a user of the Prentice Computer Centre. Thank you all for the cooperation and assistance I have received over the past sixteen years.

Alan W. Coulter

2.2 Mr John Noad – Acting Director

The Vice-Chancellor has approved that *Mr John Noad*, Deputy Director will be Director, Prentice Computer Centre during *Mr Alan Coulter's* period of secondment as Director of Development.

Mr Noad will have the full authority and responsibility of the office of Director and exercise all of the delegations of that position as from 1.12.88. John can be contacted on ext. 2189.

Alan W. Coulter

2.3 Au revoir Alan and Jocelyn

As the lead article indicates, *Alan Coulter* has left the Centre for a two year secondment as the Director of The University of Queensland Development Office. The Departmental Secretary, *Miss Jocelyn Dixon*, will also be moving to the Downtown office to assist Alan in this new venture. Both Alan and Jocelyn have been with the Centre for 16 years, and their contribution to the Centre is unquestioned.

Alan's leadership has carried the Centre through very exciting periods in the development of the Information Technology industry. His vision, particularly with respect to network development, has helped make the Centre a premier, if not the premier, University Computer Centre in Australia. His input to the debates on the direction of strategic computing development will be sorely missed.

Jocelyn has been Departmental Secretary with the Centre for 16 years. Her in-depth knowledge of the workings of the Centre, administrative procedures within the University, together with her competence and professionalism will also be sorely missed.

The Centre wishes both Alan and Jocelyn all the best for their challenging new venture with the Development Office and we look forward to their return in two years time.

John Noad
ext.2189

3. Large Systems Software

3.1 New VM/SP HPO and CMS on UQVM Scheduled for February

The operating system on UQVM is scheduled for a major upgrade from VM/SP HPO and CMS release 4.2 to VM/SP HPO and CMS Release 5.0 in February 1989 before semester one begins. Exact timing of the change over will be announced closer to the event. The system will be unavailable for less than a day.

Users will notice some differences but generally should not find any difficulty in continuing to use UQVM as they have in the past. Most differences a general user will notice are as a result of *useability enhancements*.

The areas of major interest to users include:-

a) Logging onto UQVM.

In the new release you can logon from the UQVM logo screen. You will not have to clear the screen before attempting to logon.

b) The On-line HELP system.

On-line Help will come in three levels, BRIEF, DETAIL and RELATED. All enhanced and new commands will of course be included. The INFO system will not change.

c) Full-Screen CMS.

A major usability enhancement of Release 5.0 is Full-Screen CMS. Full-Screen CMS provides a windowing environment which allows various windows of different sizes to overlay one another on the terminal screen. The use of Full-Screen CMS is optional. You will be able to turn it on and off at will. OFF will be the default. There are a number of new commands which relate to using CMS in Full-Screen mode. Knowledge of these is not required unless you wish to use Full-Screen mode.

It is difficult to fully test Full Screen CMS in our network environment prior to Release 5.0 going up. If you decide to experiment with Full-Screen CMS the PCC would be interested in your comments.

d) Your EXECs

Generally there should be no problem in running your existing EXECs under the new Release 5.0. However users who have written their own wild and esoteric EXEC or REXX code may need to rewrite sections.

The only obvious area where privately written EXECs may run into problems is in the saving and restoring of GLOBALed libraries. QUERYING the currently GLOBALed libraries will return answers in a different format in the new release. For example in VM/SP HPO 4.2 the QUERY TXTLIB command returns a one line response showing the TXTLIB's currently GLOBALed. The maximum number of TXTLIB's which can be GLOBALed at one time has been increased from eight to 63. Hence the return from QUERY TXTLIB could cover several lines in the new release. Similarly for MACLIB's and LOADLIB's. If this affects you, enter INFO PUSHPOP which describes some tools for solving this easily.

e) **Manuals and Documentation**

Several Release 5 manuals including the *Virtual Machine/System Product High Performance Option Quick Reference Release 5 (SX22-0005-7)* will be available for sale at the HELP DESK. Experienced users who want to make use of the new features may find such manuals useful to own. Reference material will also be available for pursuit detailing the enhancements and how to make use of them. Experienced users, and users with esoteric EXECs might be interested in having a look at these.

f) **The Prentice Computer Centre HELP DESK**

The PCC HELP DESK situated on the ground floor of the Hawken Building can help you with Release 5.0 manuals and documentation as already mentioned. If you have serious concerns about your EXECs and programs running under Release 5.0, the HELP DESK can take the details and pass them to a systems programmer who will investigate for you.

All the changes and differences in the new release attempt to enhance the useability, performance, capacity, and serviceability of various parts of the system. This means better utilisation of resources across the board.

Wilfred Brimblecombe.
ext. 4287

4. Operations

4.1 Operations Staffing

A number of important staffing changes have taken place since the last Newsletter.

Mr Jeffrey Scrivener has been appointed Operations Co-ordinator to replace Mr Ian Armstrong who resigned as Operations Manager in August. Jeff has extensive Operations experience in Australia, U.K. and Europe, and was previously a Supervising Computer Operator with the Centre. Jeff may be contacted on ext. 3471.

Mr Mark Noonan has returned from his assignment with the PC Support Group. Because of a significant intake of Trainee Computer Operators, Mark will be spending the next six months, at least, training new staff as well as training all Operations staff on procedures for planned new services.

Mr Peter Casson has been appointed as Supervising Computer Operator (Shifts) and takes over responsibility for leading one of our shifts. Peter has been with the Centre since 1980.

Ms Glenda Black has also been appointed as a Supervising Computer Operator (Shifts). Clients may remember Glenda from the early days when she was first with the Centre. Glenda started with us in 1972 and progressed through the ranks to Supervising Computer Operator before resigning in 1982. We are fortunate to have Glenda back on staff.

Mark, Peter and Glenda can all be contacted on ext. 3212.

Mr Vern Bawden has been promoted out of the group to the position of Program Librarian with the Large Systems Software Group. Vern can be contacted on ext. 4075.

Ms Helen Hobbs has taken over the role of HELP DESK following the resignation of Anne Sceresini and the promotion of Peter and Glenda. Helen can be contacted on ext. 3025.

Mrs Carol Walker, our Accounts Supervisor of many years standing, will be reverting to a half-time position when she returns from leave on February 1st 1989. Mrs Marie Dwyer has joined Carol and together they will perform the tasks associated with machine usage accounting and the tape library. Carol and Marie can be contacted on ext. 2188.

Recent appointments at the Trainee Computer Operator level include Mr Gavin Stone-Tolcher and Mr Andrew Vellnagel. I anticipate additional appointments over the next few months to attain desirable staffing levels.

I must point out that our current Operations staffing level is very low and we have a high proportion of junior appointments. Consequently our level of service may sometimes fall short of that provided by a full complement of experienced staff. I hope all our clients will bear with us as we rebuild the Operations group.

Geoffrey Dengate
ext. 3944

4.2 Revised Charges 1989

Prentice Computer Centre charges will be increased by 8% effective from 1-1-1989. The price for data entry will increase to \$24 per hour and jobs performed via a Small Job Requisition will be charged at \$40 per hour. The price increases are based on appropriate DEET indices rather than increases in costs.

Geoffrey Dengate
ext. 3944

4.3 Expiry Date for Computer Accounts

On 24 December each year all PPNs on the DEC-10 and UICs on the VAX8550 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/UIC, both on-line and off-line, are deleted, and corresponding charge codes are deleted from the system.

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 systems operating efficiently for the user's continued benefit.

Userids on the IBM are currently set up with an expiry date nominated by the client. The date specified remains in force unless altered using the normal AUTH-UQVM form.

It is imperative that if you intend to keep using your account for the following year you must complete the attached *Change of Expiry Date* form. These forms are also available from the ACCOUNTS desk.

Carol Walker
ext. 2188

5. Engineering & Communications

5.1 PCSA Pilot Project

The following article on PCSA is provided to assist Departments in the planning process for the integration of Personal Computers into the University Network (UQNET).

PCSA is a strategic initiative that should interest **all** PC users within the University. The Prentice Computer Centre, together with two University Departments, is proceeding with a pilot installation as the first steps in the development of a full service to be extended to the University as a whole during 1989. Once the evaluation is complete and operational issues resolved, full details of the service, and associated costs, will be published in the Newsletter.

In the meantime, clients should contact Mr Mark Williams (*Wilber*) on ext. 4079 or Mr Laurie Barram on ext. 3942 for further information to assist in their forward planning.

Geoffrey Dengate
ext. 3944

5.2 PCSA Overview

PCSA (Personal Computer Systems Architecture) provides a solution to integrating PCs into the University's network. By connecting the PC onto the Ethernet, a range of facilities becomes available from a VAX/VMS host computer. This article gives an overview of what PCSA does, and what it offers. For more information, you need the *UQnet in Brief FACT SHEET EC5 - PCSA Services*.

What does PCSA offer?

PCSA brings all the facilities of the mainframe host to the PC on your desk. Your PC thinks that it has much more disk space. It can access many more extra program packages. The files in your normal VAX/VMS accounts appear to be on your PC. Your system seems to have a fast line printer connected to it and a high-quality laser printer. Do you want the photo-typesetter? Or maybe one of the plotters?

You also have the full facilities offered by DECnet. Copy files from any DECnet host onto your PC. Use the *SETHOST* command to connect to any VMS host on campus. Even send Electronic Mail around the world - all from your own, private PC.

Another advantage of PCSA is that it can down-line load your PC. This means that you can boot your PC without any disks in it. You don't need to fumble around, looking for the correct floppy or worry about damaging it.

What are some situations for PCSA?

Take the case of a laboratory of PCs. As the administrator of these, think of the hours you need to spend preparing for a class: installing programs on disk; updating these programs to the latest versions; distributing data files to them and checking to ensure that all the files exist, or seeing if they have been "fiddled" by students. Wouldn't it be simpler if the programs were all maintained by someone else? What if you could set up the data files, and check everything, from your own PC? And not have to make never-ending copies of floppies, or move from PC to PC, repeating the same commands.

PCSA allows you to do this. As a course administrator, your PC can have full access to all your students' PCSA files and directories.

Another scenario might be where PCs are used for administrative or research purposes in a department. How much of each hard disk is taken up with copies of the same software? What does it cost to purchase each of these? How much time is involved to take backup copies of the disks – if ever it is done? And just how secure are those documents or data, against someone copying it from your PC? The solution for these worries comes with PCSA. The programs are supplied as one of the PCSA services, so you don't waste disk space on your PC. Nor do you have to purchase them. Daily backups are taken of your files, which are secured by VMS-style protections and passwords.

Let's look at the features of PCSA, item by item.

Disk Storage

PCSA allows you to have large amounts of disk space, using *Virtual Disks* or *File Services*, depending on your needs.

With *Virtual Disks*, the size of the disk is always pre-allocated. This means you pay for the full size of the disk, regardless of how much is actually used – but it is guaranteed to be available. So if you need a 10MB disk, you are always paying for 10MB of storage.

File Services cost only the amount of data actually stored. Store nothing, it costs nothing. Store 10MB, you pay for 10MB.

Backup, Security, Protection

Your PCSA files are automatically backed up. You have to *do nothing* to get this service; you have to *pay nothing* to get this service. The Prentice Computer Centre will perform a backup of all files nightly. If you are currently backing up files regularly, think of how much of your valuable time and effort that will be saved. And if you aren't taking backups – can you imagine how much safer and more secure all your files could be? All at no extra cost.

Protection is another offering from PCSA. Your files are safety guarded by VAX/VMS protection mechanism. This means that users on the host machine can only have access to your files if you desire it. Other PCSA users are prevented from using your disks or files by means of individual passwords. Files on your PC disk don't offer this level of protection – what is to stop someone from putting in a floppy, and copying your confidential documents or research results? PCSA passwords mean that the data is safety stored away, until the correct password is entered.

Access to Software

Through PCSA, you can have immediate access to software packages. Examples are Word Perfect, Microsoft Word, dBase III and SAS. It costs you *nothing* to use these. It costs you *nothing* to store these. It even costs *nothing* for the installation and maintenance of these packages. Which all goes to show that you don't need to spend money to buy the packages in the first place, then buy a big enough hard disk to put them on, spend your time installing and testing each package (or pay someone else to do it!) and finally run around trying to get the package updated when a new release happens. So your real disk storage needs will be only the actual data or documents that your need!

Remote Booting

This could be the answer to some of your dreams. If you are running a laboratory of PCs this will save you having to make copies of bootable disks, corrupted boot disks, or lost boot disks. The PC gets down-loaded through the Ethernet. Applications such as MS-Windows, which are dependent on knowing the hardware configuration can't end up with incorrect setups. For your Private PC, remote booting means that you needn't find a floppy every time you want to start, and that you don't need to be concerned about incompatibility of DOS on your hard disk and on the PCSA system.

Printers, Plotters, Phototypesetters, etc.

Have a look at what is connected to your PC. Probably it's just a very simple dot matrix printer. How would you like to have access to a high speed line printer? Then there's the Laser printer, soon to be installed, which supports "PostScript files". PCSA also allows you to access the HP plotters at the Prentice Computer Centre, and the Compugraphics 8400 phototypesetter. (Remember that your programs must be able to produce the correct output files. We can't work miracles – yet!) There is no cost to you in having all these devices accessible from your PC. You only pay for the consumables – paper, bromides, pens. And it doesn't use your time to set up the devices for use – the Prentice Computer Centre takes care of this for you.

File Transfer / Set Host / Electronic Mail

Once PCSA is installed on your PC, a range of inter-machine communications become available. Fast and reliable file transfers are an example. Large files can be copied between mainframe and to your PC at speeds around two orders of magnitude faster than before.

Need to log in to a nearby VAX/VMS system? The SETHOST command transforms your PC into a VT220 terminal connected to that system.

What about Electronic Mail? You can send it directly from your PC. (To read incoming mail, your need to log in to a VAX/VMS host).

Performance Considerations

Naturally you're concerned about the performance of PCSA disks. We've done some initial tests at the Prentice Computer Centre. The virtual disks provided by PCSA are of similar speed to hard disks on PCs. File services are slower to initially access the file, but the data is transferred at the same speed as virtual disks. The number of users on the host can affect the performance.

Prentice Computer Centre Support

With PCSA, you don't need to know how it all works. The Prentice Computer Centre takes care of it. We will install the interface in your PC. Then supply an Ethernet line into the main campus Ethernet, and provide you with a PCSA service, correctly configured for your PC. Plus, we'll modify the configuration as you require it. And make sure that everything works. Remember, we are here to help you!

Exact details and pricing information will be provided when the pilot project is complete.

Mark Williams (Wilber)
ext. 4079

5.3 News and Mail News

Since the last Newsletter, a number of things have been happening in the area of messaging systems on UQVAX.

- The NEWS program has been upgraded to version 5.5
- PSI and SPEARNET electronic mail have been released to the general user community.
- Off-Campus electronic mail is now charged to your account.

5.3.1 USENET News

For those of you who have not heard of the USENET NEWS program, it is a distributed bulletin-board program carrying messages on a wide range of topics from jokes to genetics from about 10,000 machines world-wide. You can use it by typing:

\$ SETUP NEWS

at your login prompt. You can then run the news program using the command:

\$ NEWS

Documentation on the news program is available by printing (or typing) the file NEWS_DEVICE:[DOC]NEWSUSER.DOC. There is also a bound version of the documentation available at the HELP DESK for a charge.

5.3.2 Electronic Mail Charges

Soon all electronic mail that you send out of Brisbane from hosts UQVAX, UQADM, or UQVM will be charged to your account. All charges are aimed at recouping the TELECOM charges we incur in sending your mail. ACSnet messages (i.e. those messages with the addresses of the form BUNYIP::"user@host.etc.etc" will be charged as follows:

Messages within Australia (*outgoing only*) will cost 3¢ per message, and 2¢ per kilobyte or part thereof. Thus, the average item of mail (about 1500 bytes) will cost 7c.

Messages to and from overseas destinations will cost of the order of 20¢ per message and 40¢ per kilobyte or part thereof. Thus, your standard message will cost \$1.00, or 60¢ if you keep it under 1 kbyte.

This raises the question: *how can I make my electronic mail cheaper?*

If your mail is going to the U.K. or New Zealand, you can use SPEARNET mail. This costs 3¢/message and 2¢/kbyte in Australia, and 30¢/message and 20¢/kbyte overseas, and you aren't charged for incoming messages. This route also has the advantage of being considerably quicker – most messages are delivered within 10 minutes. Another mail system is PSImail. Many sites in Australia can receive and send PSImail. Using this system, you will be charged only for the bytes you send. For more information on using SPEARNET and PSImail, contact the HELP DESK (ext. 3025).

If you are sending mail to the US, there is unfortunately no alternative at this stage to using the gateway provided by ACSnet. *Note:* SPEARNET and PSI mail are not available on host UQVM or UQKL10 at this stage.

Mark Williams
ext. 4079

5.4 Network FACT SHEETS

There is now a range of publications available at the HELP DESK to help you with networking issues. They are called *FACT SHEETS*, and current titles include:

- *EC1: Circuit Switched Network:* This sheet tells you all you need to know in order to connect your terminal or PC to a Prentice Computer Centre host machine or one of the departmental machines on this campus or at Griffith University.
- *EC2: Electronic Mail:* This document is designed to help you negotiate the confusing array of electronic mail addresses available. It also includes some hints on how to use the VMSmail utility.
- *EC3: VAX PSI – UQVAX:* Is a paper describing the VAX Packet Systems Interface, how to use it for remote login, how to send PSImail, how its use is charged, and how to gain authorisation to use it.
- *EC4: Network Charging – External:* This sheet is aimed at bodies outside the University of Queensland, and describes some options for connecting host machines to UQNET for the purpose of exchanging mail.

- **EC5: PCSA (Personal Computer Systems Architecture):** This document is currently being prepared, and describes a method for connecting your PC to a VAX for the purpose of running PC applications residing on the VAX HOST, accessing a disk server, or simply logging on. (See the article on PCSA in this issue.)

Mark Williams
ext. 4079

6. Distributed Computing

6.1 Amiga News

MS-DOS on your Amiga! Yes it is true. But why would you want to, you ask?

Well let's look at the possibilities. The Amiga 3½" disk drive can read and write IBM 720K format floppy disks, with the help of a program called DOS2DOS. This means you can merrily transfer those data files to and from your Amiga. The only catch is you need access to a 3½" 720K drive on your PC. This is where the PC Support Group can help. We have an IBM JX with a 5¼" 360K and two 3½" 720K floppy disk drives. What you do need is a copy of DOS2DOS to run on your Amiga. Give the PC Support Group a call for more information.

Are the viruses under control? These nasty pieces of work can ruin a lot of good work. If you are having trouble with the screen blanking and not coming back or if a disk that has been perfectly useful suddenly says NOT A DOS DISK, you may have a virus. They are easy to get rid of but care is needed, so contact us as soon as you suspect you are infected.

Mark Noonan
ext. 4018

6.2 Hardware and Software

I have been merrily using the AMSTRAD PC1640 for the last two months and also an evaluation copy of Borland SPRINT. The two go together very nicely. The EGA colour screen and the hard disk give SPRINT a very nice environment to work in. SPRINT has the advantage of remembering, it saves to disk automatically and you can turn the power off and on and your document is still there. At the moment it only has an American dictionary but it can be set up to check the works as you type them. SPRINT supports PostScript printers and import documents from other well known work processors. For more information, give us a call.

Mark Noonan
ext. 4018

6.3 SAS

I would like to inform those of you interested in SAS that there is a new demonstration diskette available at the Support Group. Also there is a invitation being drafted, to be forwarded to most, (if not all), SAS users on the campus, inviting those users to become active in the sharing of skills in the usage of the SAS package, (a SAS users group!). The final draft is coming soon!

Alec Waskiw
ext. 4018

6.4 Forthcoming Attractions

The support group hopes to have the staffing and the time in the near future to produce *FACT SHEETS* on the following topics:

- Data care on PC's
- PostScript
- Purchasing Computing (PC's)

These topics are being investigated at the present time and I hope the *FACT SHEETS* will be available soon.

Alec Waskiw
ext. 4018

7. Education

7.1 Course Room 2 Upgrade

Course Room 2, the Personal Computer Teaching Laboratory, has recently been upgraded with the purchase of 10 × UNISYS Personal Workstation² series 500/12 personal computers.

Basically, these systems include a 10 MHz 80286 processor, 640 Kbytes of memory, EGA colour monitor, 20MB Hardcard and two 5¼" floppy drives (1 × 1.2Mb and 1 × 360Kb). Additionally, Ethernet interface cards have been ordered to connect each of these systems permanently into The University Network (UQNET) using Personal Computer Systems Architecture (PCSA). PCSA philosophy and functionality is discussed elsewhere in this Newsletter.

The purchase of these systems will allow us to offer additional courses that required increased performance and/or hard disk capacity. While these systems are currently running MSDOS they also have the capability of running OS/2 and Xenix.

Geoffrey Dengate
ext. 3944

7.2 Final WordPerfect V4.2 course

With the arrival of the new PC systems we have at last been able to offer WordPerfect V5.0 courses. Consequently, after the course already scheduled for December 19–22, the very last WordPerfect V4.2 course to be offered is scheduled for February 13–16. If you want to attend a V4.2 course there are only two opportunities left.

For those V4.2 users wishing to upgrade, there will also be a number of short conversion courses from V4.2 to V5.0.

Geoffrey Dengate
ext. 3944

7.3 Information Concerning Courses

Below is the schedule of courses to be offered for the period December 1988–March 1989.

December

•	Introduction to SAS	Dec. 5–Dec. 9	9–12am
‡	Introduction to WORDPERFECT V5.0	Dec. 6–Dec. 9	9–12am
‡	Desk Top Publishing Seminar	Dec. 13	1–4pm
#	Introduction to UNIX	Dec. 13–Dec. 15	1–4pm
‡	Introduction to DBASE III	Dec. 14–Dec. 16	9–12am
‡	Introduction to WORDPERFECT V4.2	Dec. 19–Dec. 22	9–12am
†•	Introduction to SPSS-X	Dec. 19–Dec. 23	9–12am

January

‡	Introduction to PC/MSDOS	Jan. 10–Jan. 12	9–12am
•	Intro./Conv. to IBM3081 (CP/CMS)	Jan. 10–Jan. 13	1–4pm
†	Intro./Conv. to VAX8550 (VAX/VMS)	Jan. 16–Jan. 19	1–4pm
‡	Introduction to DBASE III	Jan. 17–Jan. 19	9–12am
	Typesetting (on KL)	Jan. 23–Jan. 27	9–12am
‡	WORDPERFECT V4.2 → V5.0 Conversion	Jan. 23–Jan. 24	1–4pm
‡	PC <—> Mainframe Communications	Jan. 24	9–12am

February

•	Intro./Conv. to IBM3081 (CP/CMS)	Jan. 31–Feb. 3	1–4pm
‡	Introduction to WORDPERFECT V5.0	Jan. 31–Feb. 3	9–12am
#	Introduction to UNIX	Jan. 31–Feb. 3	9–12am
•	Introduction to SAS	Feb. 6–Feb. 10	1–4pm
‡	Introduction to PC/MSDOS	Feb. 7–Feb. 9	9–12am
†	Introduction to VAX8550 (VAX/VMS)	Feb. 8–Feb. 10	9–12am
‡	Introduction to WORDPERFECT V4.2	Feb. 13–Feb. 16	9–12am
‡	Advanced PC/MSDOS	Feb. 15–Feb. 16	1–4pm
†•	Introduction to SPSS-X	Feb. 20–Feb. 24	9–12am
•	Introduction to SQL	Feb. 27–Mar. 3	1–4pm

Key:

- denotes IBM3081 course
- † denotes VAX8550 course
- †• denotes availability on both VAX and IBM - specify on enrolment
- # denotes VAX 11/780 course
- ‡ denotes PC course

Notes:

1. WORDPERFECT is offered in two forms (V4.2 and V5.0). The V5-course is suitable both for users beginning WORDPERFECT and for users of earlier versions wishing to upgrade with full details.

In addition, a "conversion course" is offered for V4.2 users wishing to have simply the principal differences outlined.

2. The SAS course is conducted on the IBM3081 system, but covers use on PC's.
3. It is expected that users attending courses on specific packages (SQL, SAS, SPSS-X, DBASE III, etc) will be familiar with keyboard usage, file-management and editing on the relevant machine (IBM, VAX or PC).

Attendance at such courses without this background provides many problems, as all courses are hands-on. Introductory courses are given frequently to allow familiarity with the fundamentals before attending courses on particular applications packages.

4. All courses will be held in the Centre's teaching rooms near the Physics Annexe – the mainframe courses in Course Room 1 and the microcomputer courses in Course Room 2.
5. Staff, postgraduate students and kit-owners are admitted free to courses. The charge is \$10.00 per half-day session for other internal users;
\$25.00 per half-day session for affiliated users;
and \$50.00 per half-day session for external users.
6. Enrolments for all courses may be made by phoning ext. 3018 (0830–1630).

Barry Maher/Nick Evans
ext. 3021

8. Departmental Equipment for Sale

8.1 Mini-Computer and Printer

1. PDP 11/44 minicomputer system in working order (fully maintained by DEC). Includes 1.25 Mbyte memory, 2 RL02 disk units, 168 Mbyte winchester, 32 serial ports, DSD 9" floppy disk unit + LA120 printer terminal (Items may be sold separately).
2. LA100 letter printer in working order.

For details contact *Mike Burrige* (ext. 3377), Department of Chemical Engineering.

8.2 Nashua Photocopier Toner

A quantity of Nashua 4600 Photocopier Toner is available **free**. Contact *Dal Anderson* (ext. 3166), Prentice Computer Centre.

1. The first part of the document discusses the importance of maintaining accurate records.

2. It is essential to ensure that all data is entered correctly and consistently.

3. Regular audits should be conducted to verify the integrity of the information.

4. The second section covers the various methods used for data collection.

5. These methods include direct observation, interviews, and self-reporting.

6. Each method has its own strengths and limitations, which must be considered.

7. The choice of method depends on the nature of the research and the resources available.

8. It is important to select the most appropriate method for the study.

9. The final part of the document provides a summary of the key findings.

10. The results indicate that there is a significant correlation between the variables.

11. This suggests that the factors studied are closely related to each other.

12. The study has identified several areas for further research and exploration.

13. Future studies should aim to replicate the findings and explore the underlying mechanisms.

14. The conclusions drawn from this research are based on the data collected.

15. It is important to note that the results are subject to the limitations of the study.

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THE UNIVERSITY OF CHICAGO

PHYSICS DEPARTMENT

PHYSICS 350

LECTURE 1

MECHANICS

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