IS Services Annual Report 2000-2001

Highlights

The project to replace the Student Administration System was initiated at the start of the year. This is one of the most complex and central systems in College, its use tracks a student from his/her Leaving Certificate until they become an alumnus/a of the University. A team comprising staff from the Senior Lecturer's Area and IS Services started the planning and specification process as part of which extensive consultation took place with the main stakeholders: the staff and students of the College.

A new information source for staff and students was implemented; this is called the "Student Information System" which provides a portal into several of the databases of student-related information. The web interface brings the information together and presents frequently requested information in a coherent manner.

The growth in penetration and use of Information Technology resources increased yet again. The number of installed computers grew by almost 30% over the year exceeding all expectations. The internal network had a ten-fold increase in capacity and Internet connection expanded almost four-fold with an increase in workload and complexity.

One result of the global economic downturn was the increased pool of trained staff that appeared on the job market in the late summer. This allowed the filling of some posts that had been vacant for several years. Indications are that this trend will continue in the current economic environment.

Security is an on-going issue with several incidents occurring that diverted resources into supporting staff to enhance the integrity of their computers. There were several worldwide outbreaks of malevolent viruses. Whilst these viruses brought many businesses and institutions to a halt, the central protection provided in College meant that little impact was felt. However, a number of individuals had imperfect virus protection and this meant that the support staff had to spend a substantial amount of time in restoring these systems to an operational level.

Staffing Issues

This year there were changes in senior management that had a major impact on services. The User Support Manager, Noel Cronin, was appointed as Project Manager in the new Student Administration System and it took more than nine months to appoint a replacement. The Manger of the Training and Publications Group, Fergus Murray, retired in June having worked in College for more than thirty years.

Clearly, these sorts of changes in the senior management team have knock-on effects for the whole service. Whilst these changes allow for a review and reorganisation of services, it also means that there are short-term problems where extra tasks have to be taken on by existing staff.

Staff turnover continued to be relatively low, with six staff leaving, or retiring, during the year. There were also a number of internal movements of staff between the various groups, whilst these are good for staff development and retention, they can be quite disruptive as they prolong the eventual filling of all consequential vacancies.

In consultation with the Staff Office, a number of established positions were modified in order to enhance the possibility of recruiting suitably skilled staff. This meant that recruitments at the end of Michaelmas Term resulted in several new, highly skilled staff starting during the year. There is a clear benefit in taking on skilled staff rather than having to train new graduates.

The global downturn in business during the year meant that there was a much greater pool of skilled staff on the market. This was especially apparent in late summer and several recruitment rounds appointed staff to vacancies that had been open for up to three years. In general it appeared that salary and condition expectations were being modified from the heights that they reached during the "Dot Com" bubble.

College Developments

Risk Assessment in IS Services

During the latter part of the year, senior management in IS Services conducted a thorough risk assessment exercise in each of their areas of responsibility. In this process they were guided and assisted by the Internal Auditor.

The primary aim of the risk assessment was to identify the key risks, with a view to controlling them or passing them on internally in IS Services, or to outside service providers. A number of risks were identified and where these could be addressed by IS Services, processes were initiated to reduce or eliminate them.

The area of security was identified as a major risk and the appointment of an IT Security Specialist was regarded as vital in protecting College's investment in information services. The development and testing of a detailed IT disaster recovery and business contingency plan will require work in the coming year.

Centre for Learning Technology

Two staff from IS Services who were seconded to the Centre helped provide support to the centre in a variety of its projects during the year. The establishment of the Centre is a joint initiative involving the expertise within Senior Lecturer's Area, College Academics, and Staff Development Office and IS Services. The objective of the Centre is to support best practice in the use of Information and Communication Technology (ICT) to enhance student learning within College.

As part of their work in CLT the IS Services staff have worked on the delivery of teaching projects in: Genetics, Mechanical & Manufacturing Engineering, Clinical Speech and Language Studies, School of Classics and Business Studies.

Security

As in previous years, security matters are a major priority. As part of the Risk Assessment process, a number of security issues were raised. Some of these have been addressed by modified procedures and installations, but a greater number of them need the active participation of the whole College community to ensure that the safety and integrity of College's information systems are maintained.

A College wide information security policy is being drafted and when this is finalised and agreed it will provide a comprehensive framework for IT security and will identify and encourage best practice for all users in College.

Once again, computer viruses consumed much time and resources of both IS staff and users in College. There were several serious viruses released during the year. Where users had appropriate software protection, there was very little impact on their machines, however there is a large body of users who do not have adequate protection on their computers, despite this being available centrally for their use.

Whist the virus outbreaks did not have a major impact on College, each user incident required a total rebuild of the software on the infected computer, which took in excess of a person-day

in some cases and would be unnecessary had the user installed the suggested anti viral protection.

Centrally, IS Services started scanning all email for viruses, this means that all emails to, from and through College are checked and any viruses are removed. On an average day, some 800 viruses are detected and removed.

External Environment

Euro

The final phase of the College's planning for the Euro coincided with the total replacement of the Personnel system, upgrades to the Ledger systems as well as a myriad of changes to other systems in College. As well as the major software changes there were changes to individual PCs to support the euro symbol.

The payroll system went live using the euro in September and the ledger system changeover was completed at the end of the academic year. The extensive planning work for the introduction of the euro meant that few problems were encountered during the transition of College systems.

Freedom of Information

Like most areas in College, the implementation of the Freedom of Information legislation for College meant that a number of processes and procedures had to be formally documented and, in some cases changed in preparation for compliance to the legislation.

IS Services implemented changes in the storage of backup information and service log records so that these are only stored for a minimum period. Furthermore personal information in the log records is anonymised in order to protect the privacy of the College users.

These changes in retention of backups and logs may have a long-term implication for users in that historical information is not being retained. Long-term statistical information is being retained, but tight controls are being placed on the retention of personal information, which has not been directly requested by the users.

Most of the databases that are maintained by IS Services are the responsibility of user areas, so the legislative implication of the information in the databases lie with the user area.

HEA Reporting

As is normal, the HEA made several requests for information that required the modification of College systems. They are also implementing an internal database that will mean that College will have to upload some information for later analysis by the HEA.

College acted as the test university for the new HEA system and considerable time was spent in working with the staff in the HEA to ensure that the process operated in a satisfactory manner.

Foot and Mouth

The nine universities on the island of Ireland have been organising an annual conference for the Computer and Library staff for almost ten years. The conference promotes the interchange of experiences between the computer centres in the Colleges and between the Libraries as well as between libraries and computer centres. A broad cross section of staff attends these conferences, which are focussed on service provision. This year Trinity and UCC were the joint

organisers and the event was to be held in Killarney.

The outbreak of Foot and Mouth disease in the country took place the week before the conference and forced the cancellation of this North-South event.

Security

The terrorist attacks of September 2001 emphasised the requirements for computer and network security on the campus and may well result in a slower implementation of some end-user systems and facilities. For example, it is suspected that terrorists in the USA were communicating amongst themselves using the wireless networks that are implemented in many universities. It is possible to implement these in a secure manner, but this usually requires extra effort on behalf of the user and the service provider such as IS Services.

A pilot wireless network scheme is in the planning stage and will be based on appropriate security levels to ensure the integrity of the data transferred as well as ensuring that resources are only available to legitimate College users.

Organisation of IS Services

User Support

Due to the difficulties in recruiting a User Support Manager it was not possible to make major changes in service delivery until later in the year. The summer of 2001 was unusual in that the workload of the User Support staff increased significantly in relation to previous summers. This could possibly be explained by the increase in use and penetration of IT in College.

In a similar manner to other years, the number of incidents handled by the User Support Group increased, with the number of walk-in users decreasing slightly.

For the first time, there are accurate figures on the number of incidents reported by telephone. The special equipment to monitor these was installed at the start of the year.

There were 21,581 phone calls to the helpdesk, averaging at almost 90 per day. Of these, 80% are answered within 2 minutes. Calls are queued and if not handled in reasonable time are diverted to voicemail. 20% of the calls are abandoned, either because the user was interrupted, discovered the answer or could not wait. This figure of 20% is regarded as low, by comparison with call-centre best practice.

On average, a call to the helpdesk takes five minutes to handle, however this time varies during the year, with an increase at the start of the year, stabilising in Hilary and Trinity terms and peaking again in the summer. This probably reflects on the experience of College users as they progress through the year.

A plot of the time taken to handle phone calls is included in the statistical appendix showing the change in time across the academic year.

The statistics that the telephone system provides has allowed some rescheduling of the helpdesk staff, it is now apparent when the busy times of the day are likely to occur and extra staff can be allocated to the telephones at these times, similarly there are periods of lower activity and staff can perform other duties during these periods. A plot of the typical diurnal call pattern is provided in the statistical appendix.

There were 9,133 helpdesk calls reported by email and 742 by the web. It is an objective to have more items reported by the web in future. The web allows a greater degree of interaction with the user and it may be possible to use web techniques to suggest solutions to problems

that users report.

A new series of training courses in the production of web pages for College departments was introduced, proved to be very successful and was run several times. The course was developed in conjunction with the College Web Group and was geared to College web sites using the standard College web development tool "Dreamweaver".

A student handbook has been produced on an annual basis for all students at the start of the academic year. This year the booklet was replaced by a credit card sized information leaflet, which it is hoped that students carry around to assist them in the use of the College services.

All new staff in College are presented with a booklet describing the facilities provided by IS Services. This booklet should assist staff in using the resources that are available on the College network and on the Internet. A copy of the Computer and Network Code of Conduct is included in the booklet.

Computer Shop Closure

The Computer Shop has provided a purchasing service to College for more than ten years. In the early days, College was able to achieve significant savings in the purchase of computers and peripherals by having an internal shop and acting as a retailer for the computer manufacturers.

The introduction of distributed purchasing along with centralised procurement has meant that users purchase computers directly from the suppliers, with no involvement of the Computer Shop. This, along with the wide range of local computer and peripheral suppliers, as well as decreased margins, meant that the viability of the shop was in question.

During the year, it was agreed that the shop should be closed and a purchasing advise centre be implemented to replace it. The shop closed on 12th July 2001 with a small deficit for the year, however following on nine years of a surplus the overall financial position of the shop was in credit.

Audio Visual and Media Services

Following the decision of Board in Trinity Term 2001 that responsibility for AVMS should be transferred from the Senior Lecturer's Area to IS Services on 1st October 2001, extensive discussions and negotiations took place to plan the transfer.

Agreement was reached with the staff in AVMS, and planning for the transfer progressed. It was decided that AVMS should initially report to the Computer Services Manager in IS Services.

Student Facilities

Several of the student computer rooms were upgraded with the latest PCs and Macintoshes as per the rolling three year upgrade process. One innovation this year was to install flat panel monitors where possible. For the first time, it is now possible to purchase these at economic prices. Flat panel displays have several benefits for College: reduced energy costs, reduced heat, improved environment and space saving. Following on the saving in space, it is possible that extra computers can be installed in these rooms.

The concept of stand-up email machines has proved popular with the students and a number of extra machines were installed in the Arts Building, Aras on Phiarsaigh and in the atrium in the Panoz Building. As suitable spaces are identified, more stand-up machines will be installed.

Whilst there was a small increase in the number of student computers, there is still a growing requirement for extra machines as was reflected in some students having to queue for access to the centrally provided computers.

Following several years of problematic service to Apple Macintosh users, the central file storage system was replaced and a new, fast and reliable system implemented for the new year. This system should allow greater flexibility in storage allocation in the future.

College Networks and Facilities

Along with standard College procurement procedures, a tender process for the internal network was undertaken and a new network equipment supplier was selected

Using the new supplier, the core of the College network was upgraded to Gigabit Ethernet standards without any interruption to service. The new network is operating satisfactorily and extensive statistics and usage plots are now available online. Along with the new core network, a large number of individual network points were upgraded from 10Mb to 100Mb and this process will continue in future years until all points have been upgraded.

The extensive building programme in College resulted in several network outages, despite the planning to reroute traffic around vulnerable areas. The College infrastructure is designed in a resilient manner, however building work has resulted in cables being damaged and services being interrupted. It is now practice that two diverse routes should be provided into the major networking hubs in College, just to avoid such interruptions however it will be some time until the installation of diverse routes to all buildings is completed.

The annual tender for PC suppliers was performed and one of the longstanding suppliers was not included in the selected list for the current year. This supplier who has now withdrawn from the European market has, however, established a maintenance and support system locally and will honour all warranty and maintenance contracts that are in place.

Apple Macintosh computers were included in the tender for the first time and two suppliers were placed on the approved list. These suppliers will also maintain Macintosh computers now that the franchise for Apple has been withdrawn from College.

Internet Developments

Access to the Internet is a prerequisite for most activities in the College and the access line to HEAnet was upgraded several times in order to keep up with demand from the users. It is interesting to note that the Internet capacity available to College now exceeds the access speed of the original 10Mb Ethernet. At the end of the year, the College was connected to the Internet at 30Mb.

HEAnet, the Internet service provider for the universities, and part owned by College, has taken advantage of some of the state funded fibre connections to the US and mainland Europe and has installed high-speed connections to the advanced Internet-II in the US and to the European research network Geant. These connections should allow advanced research to be carried out with other institutions in these countries.

Library and Administrative Developments

Student Information System

The development and rollout of the Student Information System (SIS) presented a major change in the method of working of many staff in College. This system provides them with immediate access to student information that was previously only available in paper format following a telephone request. Some information, now available in the system, such as timetable and room booking data, was previously not generally available.

Similarly, the SIS provides students with their own College information, including timetable, list of modules, past examination papers as well as private information such as their examination code for anonymous marking.

In effect, the SIS is the start of an information portal for staff and students. It is expected that a comprehensive portal system should be implemented in the future, possibly following the introduction of the new Student Administration System.

Human Resources System

The Personnel and Payroll system was replaced by a new integrated system, this involved new interfaces between the system and the rest of the College databases. Following parallel running the payroll system went live in January. The payroll system was converted to Euro operation in August

Whist the payroll side of the system is in full operation, much work is still required to integrate the personnel management system into College operations. When this project has been completed and is maintained on an on-going basis, management information on staffing in College should be more readily available.

Replacement Student Administration System

The project to plan for the replacement system started work with the establishment of a project team and a series of committees.

The first phase of the project was a consultative phase, where the opinions and requirements of users were established and documented.

As this is a very large project, the preparation of the tender document is very time consuming, but is a vital part of a successful implementation of the new system. The tender will be issued in the spring 2002 and it is planned that the new system will be chosen in the summer of 2002.

HEA Reporting

College was a test site for the project to upload student information into the HEA's internal databases. Considerable effort was invested in ensuring that this went satisfactorily.

The First Destination Returns system was redesigned and rewritten to conform to the new HEA requirements; the information was uploaded to the HEA in a satisfactory manner.

Internal Database and Housekeeping

A considerable amount of the work that IS Services perform is background infrastructure work that is not usually visible to the end users. The maintenance, support and development of the large database systems require constant management and intervention in order to provide optimum service delivery to the users.

One aspect of this is that the databases and ancillary programs must be kept in line with the industry, and an enormous amount of work went into upgrading the database, Oracle, to a currently maintainable level.

In a similar manner, the development of formal standards for developing and maintaining code and documentation is part of the "foundations" of modern systems. These are largely unseen, but are essential to have in place in order to ensure a reliable and consistent level of service delivery.

The Future

It is vital that all users of computer and network facilities in College take personal responsibility for the integrity of the data systems, hardware and software, under their control. Any laxness in security on personal machines can jeopardise the integrity of the whole College information system.

It is planned that an information programme be initiated to identify personal responsibilities and help people in how they can maintain their own machine in a secure manner.

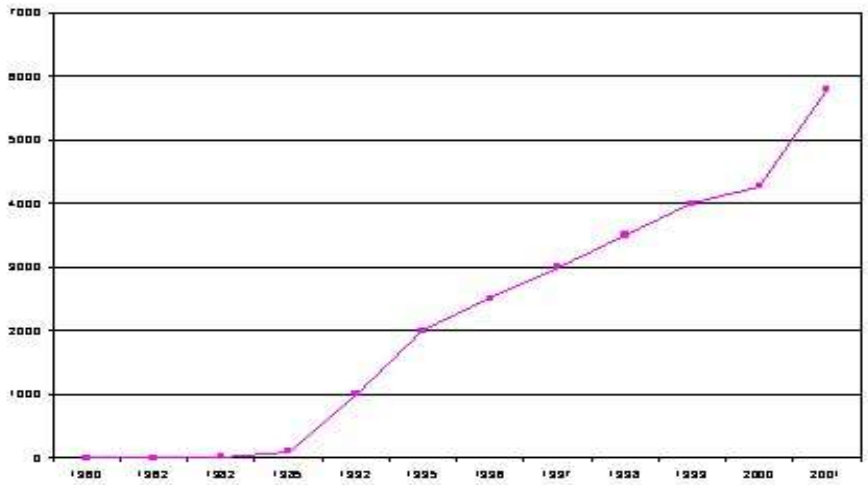
IS Services plan to work to international best practice and standards in service delivery to ensure that the best possible groundwork is built to ensure a consistent and reliable service to end users. Conforming to standards and best practice will mean extra effort and possible delays in implementing systems, but the long-term quality of these systems should be enhanced.

The risk analysis process has identified a number of internal and external risks that will require continued attention in the future. Whilst major efforts were put into to the risk reduction programme, developments in College, and outside, will mean that this area will require work on an annual basis. As in most processes, the risk analysis/risk reduction programme is a balance between the identification of acceptable levels of risk as opposed to the expenditure of large amounts of money in protecting against improbable risks.

The definition of responsibilities and communications mechanisms between user areas and IS Services will need to be formulated in the coming year in order to optimise the deployment of the modern information systems that are being planned and implemented.

Appendix Statistical Information 1995 to 2001

1. Estimated Number of Computers in College



2. Changes in funding and staff numbers in IS Services

	Non-Pay	*Pay*	*Total*	*Staff Count*
1995/96	1,190,634	1,113,710	2,304,343	48
1996/97	1,635,410	1,286,45	2,921,867	52.5
1997/98	1,470,176	1,362,741	2,832,917	59
1998/99	1,391427	1,574,475	3,087,730	63.5
1999/00	1,613,876	1,867,816	3,481,692	62.5
2000/01	1,711,194	2,145,018	3,856,212	61.5

3. Number of Public Access Computers and Laser Printers

	No. of computers	*No. of printers*
30th September 1995	223	18
30th September 1996	247	19
30th September 1997	367	56 (trials using small printers)
30th September 1998	379	29
30th September 1999	408	38
30th September 2000	494	38
30th September 2001	526	38

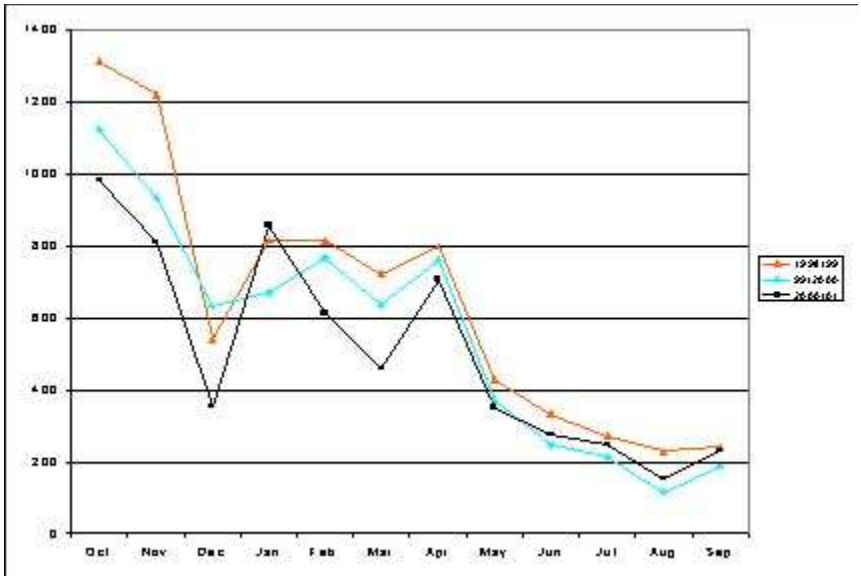
4. Internet Connection speed

Date	*TCD Internet speed*
October 1992	64 Kb
October 1993	128 Kb
October 1994	128 Kb
October 1995	128 Kb
October 1996	512 Kb
October 1997	2 Mb
October 1998	2 Mb
October 1999	5 Mb
October 2000	8 Mb
January 2001	20 Mb
October 2001	30 Mb

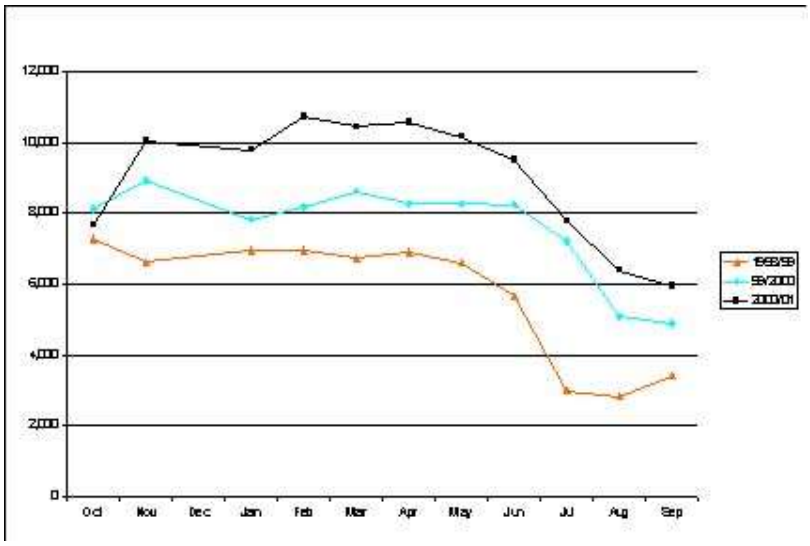
5. Documents Retrieved by Proxy Servers

Year	*Number of pages*
1998/99	197,857,969
1999/00	333,983,923
2000/01	525,977,517

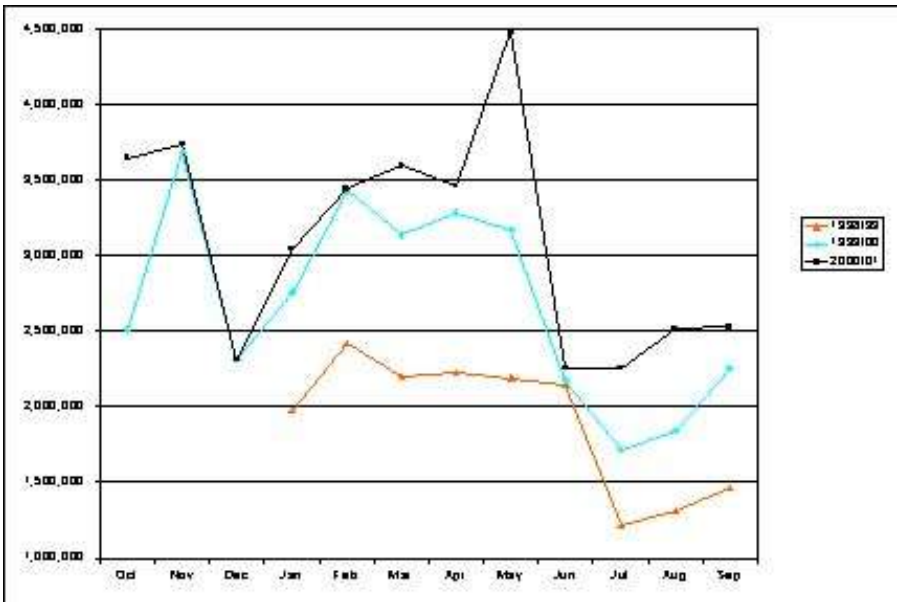
6. Number of Walk-In Helpdesk Incidents



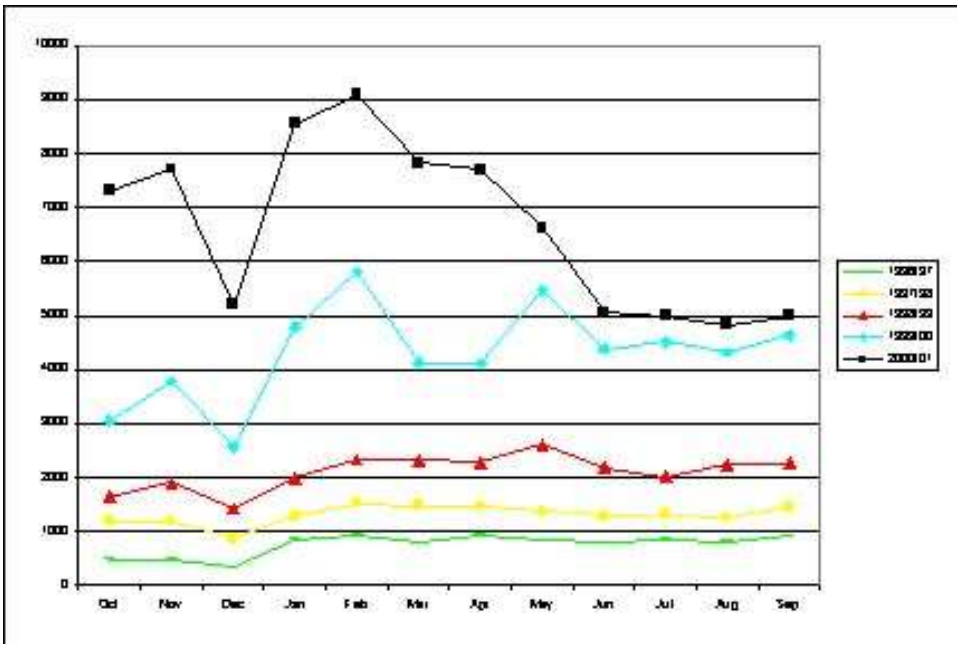
7. Numbers of Undergraduate Students using email



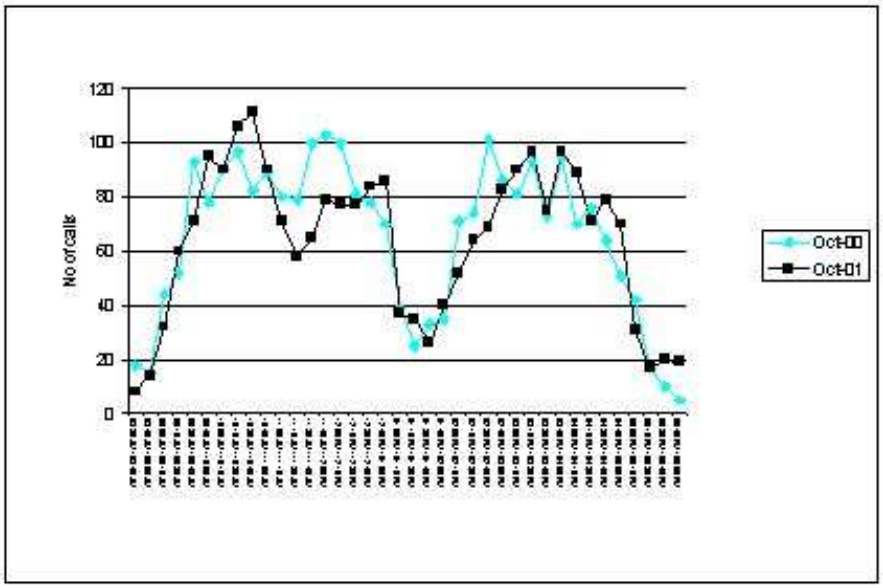
8. Count of emails to and from TCD



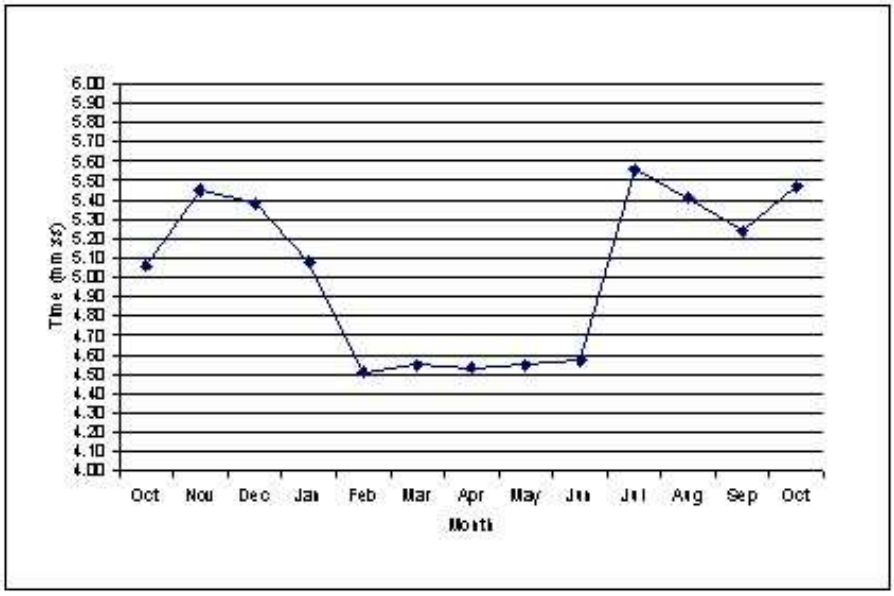
9. Number of Accesses to TCD Home Page



10.Typical Daily Helpdesk Call Numbers



11.Duration of Helpdesk phone calls over the year



12.Access Count of Student Information System