

NATIONAL UNIVERSITY
AUTONOMOUS DE NICARAGUA
UNITE-MANAGUA



MASTER PLAN
TECHNOLOGIES OF INFORMATION AND COMMUNICATION
(TIC)

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GENERAL INTRODUCTION

The world has entered in a stage of economic and cultural globalization in which many of the political, economic and ideological barriers that separated to the towns disappear and where the companies act in a market of world environment. You is in a stage of mundialización of problems and solutions where everything is interrelated and where the open competition demands to adapt continually to the demands of the clients and to offer a maximum quality.

This way in this interrelation, the citizens of the world of the XXI century cohabit with fabulous machines and materials: computers, telematic nets, environments multimedia, formats hipermediales that provide potent tools for the treatment of the information, and they allow to establish communication networks that facilitate a speedy circulation of people, all told goods, money and information the planet. But these constant scientific advances, promote new securities, they cause continuous transformations and necessities that make necessary the permanent formation.

These changes in the society and for ende in the University make that a new university culture is forging. To achieve this it is necessary that we adapt all (administration, docencia, superior address, students...) to a new conception of the University that he/she helps us to define the paper that must play, the functions that it must develop, the necessities to those that must give answer, the working methods that it must change, etc. These changes are deep and they belong to what is known as culture of the organizations. In Nicaragua this culture change comes also determined by the growing offer formative university student that explains to you, among other causes, for the number of new universities that you/they have been created.

The factors that affect the culture change directly in the Autonomous National University of Nicaragua (Unite-Managua) they are the technology, the computer instruments, the access and excess of information, the growing necessity of very diversified continuous formation, the increase of professors, the transformation of the function educational-university student, the realization of investigations more multidisciplinaries and grupales, the exchanges with other more and more frequent and intense countries, and the impact of the technological development in the academic practice and of address.

The features of our university are determining for the university of masses, bigger demand of quality, flexibility in their structures and offers of teachings, diversification territorial, bigger competitive pressure, tension between the teaching and the investigation, demands for increase in the budget with the rising incidence in the domestic economy.

These fundamental features take to among other: a bigger commitment to carry out strategic projects, a decentralized address, development of capacities to respond to an entrance bigger than students, will and competition to assume the advantages of the new technological acquisitions once they are acquired.

Adjusted to this reality the Autonomous National University of Nicaragua - Unite-Managua - supported by the Swedish agency for the Development (Asdi/SAREC) in coordination with the other national universities of Nicaragua is developing a project in Technologies of the Information and the Communication. All this with the objective of creating that in agreement new university culture with the advances of the computer science's era, in such a way that the higher education can develop the key abilities for the success of the students among them communication abilities, basic knowledge of the mathematics, use of the TIC and to learn how to learn.

This project of Technologies of the Information and of the Communication in our university consists: in a basic Infrastructure (hardware and software) for the communication (UnanNet); Formation, specialization and Training; System of Information for the Library; System of Information of Academic Registration; System of Financial Information; teaching Program and learning for the different modalities (regular, sabatinos, for encounter, at distance) applied by means of TIC.

The above-mentioned will contribute a series of advantages to the such Unite-Managua as: I support to the administrative administration of the centers, facilitating an automated, decentralized and shared administration; internal and external communication of the Nicaraguan university community; easiness for the relationships of international collaboration and the achievement of the academic excellence as culmination of the superior education in our Alma Mater.

DEFINITION OF PROJECTS

Basic infrastructure (hardware and software) for the communication (UnanNet)

Introduction.

Along every year the Unite-Managua has lacked an infrastructure of integral net that allows him the internal and external communication among the different Abilities, Centers of Investigation and Regional Centers, which is made through the one he/she sent bidirectional of floppy disks and visits that makes the so much executive staff of the central headquarters toward the Abilities, Regional Centers and of Investigation and vice versa, little or any relationship among educational of the same areas of the knowledge and investigators, is not collaborative work among the students from the university to national and international level among other, this impacts in the backwardness for the upgrade of the different systems of information that you/they are of vital importance in the efficient and effective development of the university work.

At the present time the Unite-Managua has a Main Node of Internet that offers two types of services to the university Enclosure Rubén Darío (RURD), Access to Internet via LAN and Access to Internet via modem.

For the access to Internet via modem has an obsolete rack (I model, descontinuado) of communications for access dial-up. In total they have 16 módems, 5 of these they are damaged. There is capacity to give services to 11 users in a simultaneous way through telephone line, 9 through extensions of the internal plant and 2 through numbers of public services.

The number of users of Internet via modem is very limited so much inside the administrative area as academic for deficiency in the internal phone system, the lack of appropriate team (computers without MODEM) and the drops speeds for the access of INTERNET.

For the service to Internet via LAN has a switch Model Catalyst 1900 obsolete, model descontinuado and without capacity of growth, which has 24 ports of 10Mbps and 2 of 100Mbps, a router model CHAOS 2500 that he/she doesn't have capacity of growth, neither of upgrade and it is a model descontinuado, a digital MODEM Paradyne XXX (physical access for the commercial supplier of Internet) and two PC currents transformed into servants for the central node, both have limited capacity by heart, storage and prosecution. Through this service is given by means of local nets to the Library, computer department and department of Physics of the RURD.

The connection of the computer department and of Physics to the main node of they UNITE it he/she makes through direct connection of fiber optic using convertors of means (fiber optic to UTP). It also exists in they UNITE it two small nets LAN located in the Ability of the Education and program of Master of Sexual and Reproductive Health, which have connection to Internet in an independent way through two commercial suppliers of Internet (IFX, Cablenet).

The existent nets LAN are: group master, group education ability and group B1 (library, computer department and department of Physics) those that are completely independent and they don't have physical connection among if.

All the above-mentioned shows that the reflective type of described team a faulty service for the few accesses that can be made besides that it is not possible that the university community (20000 students, 780 professors and 400 office workers) he/she makes a massive use of the services of Internet. Others of the factors that affect the continuous operability are the lack of an appropriate and efficient system of electric back and air conditioning.

The software used in the main node of Internet of the University is not upgraded in an appropriate way, that which causes safe-deposit deficiencies and limitations in the services of Internet lent in the university community and hardware conflict (since this it is not upgraded in an appropriate way). An example of this is the software for the generation and efficient creation of pages web which is acquired and used in an illegal way.

Not having the hardware infrastructure and appropriate software for the distribution of information (I siege web) it affects negatively; since he/she doesn't allow to give to know of form efficient results of investigations and offered courses among others. This constitutes a restrictive of communication with other universities and institutions of superior education that are enrichment sources for the academic work.

The creation of an appropriate net infrastructure for communication of data would establish the bases for the implementation of the voice mail through the net, that which would allow the flowing and efficient communication among the central headquarters (Managua) and the Centers of Investigation, Regional Centers and Abilities, dispersed in different domestic parts, decreasing this way the high and faulty costs of phone communication.

Given the current state of the net infrastructure becomes necessary to create conditions that allow to offer from Internet/Intranet to the university community allowing this way to give a great jump to the University and to locate it inside the technological standards, consequently this makes necessary that an interconnection infrastructure is implemented that provides to the University in its group (students, educational, investigators and administration) to reach acceptable levels of communication and data transmission among the Abilities, Centers of Investigation and Regional Centers.

Objectives.

General:

To develop a net infrastructure in they UNITE it - Managua with their Abilities, Regional Centers and Centers of Investigation.

Specific:

To install a local net that covers all the working places and communities of interest, inside the enclosure Rubén Darío.

To install connections among Abilities, Regional Centers and Centers of Investigation.

To implement a safe-deposit system for the physical infrastructure and logical.

Description of the components of the project.

Fiber optic backbone

A net will be built of wired air that connect certain points inside the main campus of the university (Ability of Sciences of the Education and Humanities, Ability of Sciences, Ability of Medicine, Polisal, Central government and Superior Direction).

For the interconnection of these buildings, it becomes necessary the installation of a center of having wired in each one of them, having conectividad by means of multimode fiber optic, working of air external plant, of six threads, as backbone to Gb Ethernet. Each end of the fiber, it will be ended with connectors type SC, which were connected in a panel of use fiber optic in rack, in all the centers of wired.

The trajectory of the fiber will be according to it shown in the enclosed plane (I Annex 1), owing the supplier to guarantee the quantity of necessary fiber for this interconnection.

The one spread of this cable it will be air using the existent infrastructure in they UNITE it (electric power posts, buildings), for that which will be carried out a visit to the place to confirm quantities and trajectory.

To provide of assembly cabinets in wall for each center of wired secondary (10 in total), with key system and enough space for the installation of the current active teams and futures. (24" of high x 21" of wide x 20" of depth)

A cabinet for the center of wired main of 84" of high, with ventilation system in the superior part, front and later door with system of in llavado. Clever for assembly of teams of 19" of wide.

Central node

He/she should be carried out a wired one structured in the building where the central Node of the university will be located and to condition it with switches, servants and routers that have capacity to support the connected points so much to the Backbone like wireless connections and of dedicated line to be used in external connections.

External connections

The Ability of Economy (RUCFA) and The Center of Investigation for Aquatic Resources (CIRA) they will be connected wirelessly to the Central node of the university because they are too far away to be incorporate inside the fiber optic backbone. The Regional Centers of the university located in the departments of Carazo, Chontales, Estelí and Matagalpa to be too far from the Unite-Managua (RURD) where the Central Node is located, they were connected by means of dedicated line.

Organization of the project.

Phase 1: I design of the plane (infrastructure basic Annex 2)

Internal connections

To identify the points for where it will pass the backbone, which can be:

PI: Intelligent Point (servant)

PNI: Non Intelligent Point (switch)

PNC: Point Central Node

To classify the connection points with their hardware and corresponding software in each point.

To determine the quantity of optic terminals.

External connections

To identify the points for where these external connections will be

To classify the points of connections with their hardware and corresponding software in each town.

Phase 2: Bid base for the construction of the basic infrastructure.

To determine the good technical characteristics of the teams to be bid, as well as the minimum technical capacities required by the personnel of the national companies to bid.

Among other things it will include:

Personal highly qualified (certified engineers for makers of mark World cup recognized in solutions WAN/LAN) that resides permanently in Nicaragua.

Documentation presentation that certifies several years of experiences, in configurations described in the project.

Authorized distributor of level Enterprise.

Phase 3: Bid for the hardware and software.

Phase 4: Backbone of Fiber optic

Conditioning of each point.

Physical installation of the components of having wired and teams that compose the backbone of the LAN of they UNITE it.

Configuration of the net teams (Switch, Routers).

Phase 5: Central Node

Appropriate conditioning

Configuration of the central Switch, to which the fiber optic connections coming from the centers were connected of wired.

Configuration of a Switch, to which the preferred servers were connected (DNS, Web, Electronic mail, System of information of the Library, Academic, Financial Registrations and Human resources) of the net of the university.

Configuration of the RACK of MODEMs for access dial-up of users.

Configuration of Switch and/or Routers to give conectividad to the Regional Centers, Center of Investigation and Ability of economy, these they are centers that are geographically far from the University.

Installation and configuration of a control System and supervision.

Installation and configuration of a system FireWall.

Installation and configuration of a system of the electric back.

Phase 6: internal Connections

Conditioning of each point.

Installation of the optic terminals.

Configuration of the Switch, to which the fiber optic cable was connected (backbone).

Phase 7: external Connections

Conditioning of each point.

Configuration of the Switch to which the conduit was connected (dedicated line or I radiate MODEM).

Phase 8: you Prove to be carried out

Realization of tests of continuity and losses of data.

Identification and certification of the work.

Phase 9: Delivery documents

Planes referred to the realized work with the journey of the wired one and the different connection points.

Detail of the configuration of the Switches, including the numbers assigned IP and a diagram that it shows the utilized topology.

Result of the mensurations of the wired one of Fiber optic.

Preparation and he/she surrenders of the documentation of the installation.

Technological requirements.

To fulfill the proposed objectives it is required the following:

Materials of having wired.

Switch central node.

Switch intermediate node.

Distribution switch.

Router.

Chronogram of activities.

Budget.

UNAN		PRESUPUESTO		
		BACKBONE DE FIBRA OPTICA		
ITEM	DESCRIPCION	CANTIDAD	P. UNITARIO	TOTAL
MATERIALES DE CABLEADO				
1	42U Premium Base Enclosure w/Fan Tray 120vac/60hz - 4 fans (Netshelter APC)	1	\$1,842.00	\$1,842.00
2	X-MARK Wall moun cabinet 24" alto x 21" ancho x 20" de profundidad	10	\$429.00	\$4,290.00
3	Paneles de Interconexión de Fibra Optica de 12 puertos (para uso en rack)	11	\$182.00	\$2,002.00
4	Conectores SC	80	\$13.00	\$1,040.00
5	Patch Cords de 2 Metros SC-SC	23	\$31.00	\$713.00
6	Patch Cords de 10 Metros SC-SC (para servidores)	7	\$40.00	\$280.00
7	Fibra Optica de 6 hilos, figura 8, para uso en servidores (ft)	6600	\$1.50	\$9,900.00
8	Accesorios varios	10	\$100.00	\$1,000.00
	Sub total CIF Managua			\$21,067.00
	Impuesto de Internación			\$2,408.04
	Sub total			\$23,475.04
	IGV			\$3,521.26
	TOTAL			\$26,996.30
MANO DE OBRA				
9	Instalación Fibra Optica (10 enlaces hacia el nodo central) Instalación cable FO; Instalación de Gabinetes; Instalación de Paneles de fibra óptica Terminación de conectores de fibra óptica; Puesta de etiquetas Pruebas de los enlaces de Fibra Optica; Elaboración de documentación	1	\$ 4,000.00	\$4,000.00
	IGV			\$600.00
	TOTAL MANO DE OBRA			\$4,600.00
	TOTAL CABLEADO			\$31,596.30

UNAN**PRESUPUESTO****SWITCHES**

ITEM	DESCRIPCION	CANTIDAD	P. UNITARIO	TOTAL
SWITCH NODO CENTRAL				
1	Catalyst 4908G-L3 Layer 3 Switch, 8 port 1000X GBIC Slots	1	\$14,995.00	\$14,995.00
2	1000BASE-SX "Short Wavelength" GBIC (Multimode only)	5	\$500.00	\$2,500.00
SWITCH NODO INTERMEDIO (Pabellón 100 y Computación)				
3	Catalyst 3508G XL Enterprise Edition	3	\$4,995.00	\$14,985.00
4	1000BASE-SX "Short Wavelength" GBIC (Multimode only)	12	\$500.00	\$6,000.00
SWITCHES DE DISTRIBUCION (Pabellón 100, B, 300, 32, Medicina, biblioteca, 22, 16, 5, Frances)				
5	Catalyst 3524-PWR-XL Enterprise Edition (24 ports 10/100 + 2 GBICs)	10	\$3,995.00	\$39,950.00
6	1000BASE-SX "Short Wavelength" GBIC (Multimode only)	10	\$500.00	\$5,000.00
7	GigaStack Stacking GBIC and 50 cm cable			
	Sub Total Switches FOB Miami			\$83,430.00
	Flete Aéreo, Manejo y Seguro			\$2,000.00
	Sub total de Switches CIF Mga			\$85,430.00
	Impuesto de Internación			\$8,543.00
	Sub Total			\$93,973.00
	IGV			\$14,095.95
	TOTAL			\$108,068.95
MANO DE OBRA				
	Instalación y Configuración y servicio de Garantía			\$7,000.00
	IGV			\$1,050.00
	Total Mano de obra			\$8,050.00
	TOTAL EQUIPOS			\$116,118.95

UNAN

PRESUPUESTO

ROUTER

ITEM	DESCRIPCION	CANTIDAD	P. UNITARIO	TOTAL
ROUTER CISCO3620				
1	Cisco 3600 2-slot Modular Router-AC with IP Software	1	\$2,900.00	\$2,900.00
2	4-Port Serial Network Module	1	\$3,000.00	\$3,000.00
3	V.35 Cable, DTE, Male, 10 feet	4	\$100.00	\$400.00
4	Cisco 3620 Series IOS IP	1	\$0.00	\$0.00
5	Power Cord,110V	1	\$0.00	\$0.00
	Sub Total Switches FOB Miami			\$6,300.00
	Flete Aéreo, Manejo y Seguro			\$400.00
	Sub total de Switches CIF Mga			\$6,700.00
	Impuesto de Internación			\$670.00
	Sub Total			\$7,370.00
	IGV			\$1,105.50
	TOTAL			\$8,475.50
MANO DE OBRA				
	<i>Instalación y Configuración</i>			\$600.00
	IGV			\$90.00
	Total Mano de obra			\$690.00
	TOTAL ROUTER			\$9,165.50

Formation, specialization and training

Introduction.

The development of the abilities in the Technologies of Information and Communication (TIC) they have become a necessity of inevitable application. The increase of the knowledge and abilities TIC are limited at the moment so much in the academic area as administrative of the Autonomous National University of Nicaragua-Managua (Unite-Managua); in and of itself their authorities put special emphasis at the moment in the training in this area.

During the last seven years it has been qualified the educational and administrative personnel in the basic handling of the computer; I use of the operating system, programs ofimáticos and in the last three years the electronic mail manipulation and sailing in INTERNET. In special cases it has been qualified in Computer science's use as auxiliary of the Enseñanza/Aprendizaje. A minority of professors has been formed abroad on topics as Nets, Telematic, etc..

The training has been coordinated by each one of the administrative or academic units with the corresponding instance. The qualified educational personnel's calculation is approximately of 25% and of the executive staff 80% in the use of programs of utility in the office. The students of some careers also receive courses of computational literacy, for the handling of programs specialized in their career like SPSS in Statistical.

Supported by the Swedish agency for the Development (Asdi/SAREC) the Autonomous National University of Nicaragua, Unite-Managua, in coordination with the other national universities of Nicaragua, it is developing a project in Technologies of the Information and the Communication to endow them of an infrastructure of communications that you/they provide from a complete international access to INTERNET that you/they help to the address, administration, education and investigation to conform Systems of Bibliographical Information, I Register Academic, Systems of Administrative Information and others.

For this reason the present project is of great importance because it will upgrade the formation in Computer science of the educational personnel and office worker as the changes that intend: to Develop the net in the central enclosure and its connection with the different university centers inside of and outside of Managua; its connection to INTERNET and the automation of the different systems of the educational and administrative area.

To make use of the net (INTRANET and INTERNET) it will be qualified the educational personnel, students and office workers whereas clause for these last ones the training necessity in the systems of information, according to the position that corresponds him. This training contemplates the computational literacy of the students that you/they come from the educational centers of Half Education and that they have not received this formation and they constitute a majority.

It is necessary also, the educational personnel's training with computer tools characteristic of the Education to Distance and on-line Education to enlarge the university services to those students that cannot attend the classrooms for their geographical location and labor acting, this will be been able to take I end up by means of the implementation of the TIC in our university.

The university has the following susceptible group of being qualified: 354 office workers, 75% of the professors (567) and 60% of the students (11000) registered in academic Year 2001.

The training is foreseen to begin in the course of the year 2002, for the personnel that will administer the Node and the Net, as well as for the one that will manage the systems of information and courses of computational literacy will also be given for the students that are in the last year of its career, the professors that have bigger labor linking with the TIC will also be included. This training will be permanent and it will allow to complete the formation of the whole involved University Community.

Objectives.

General:

To form the specialists that will be responsible for the development and maintenance of the Technologies of the Information and the Communication in the Unite-Managua.

To qualify the students, personal educational and administrative so that they can exploit to the maximum the resources TIC.

Specific:

To contribute to that the users from the Unite-Managua use the technologies TIC in an efficient way so much in the academic area, investigation and administrative.

To apply the specifications, design and implementation of application TIC in the Unite-Managua.

To assure that the area of resource management TIC gives the permanent training and maintenance for the I take care of teams and software.

Description of the components of the projects

To achieve the training objectives they should be completed with: Formation of the personal staff, formation of the group that will be responsible for the administration of the Nets and the Node; formation of the personnel that he/she will administer the systems of information; conformation of the team of educational that qualified users of the net.

Formation of the personal staff

It is necessary the formation of a person in computer audit and training for a person that is responsible for the attention to the user.

Formation of the group that will be responsible for the administration of the Nets and the Node

He/she will be formed a person that will administer the Node with emphasis in security in Nets and Operative Systems, a person that is responsible for the Nets and other the Operative System. For them it is expected that they make overseas Postgraduate study, of

being possible with the modality for encounter and these in turn will qualify those that have responsibility in these areas in the abilities and regional centers.

Formation of the personnel that he/she will administer the Systems of Information

Training will be given to a person that administers the Systems of Information (System Driver of Database and Programs) and to those responsible for each implemented System). For the personnel of each address it will be qualified in the aspects to the Introduction to the Computer science, for the team of professors that you/they qualified the users of the net and in the related to the Systems of Information will make it those that make the programs.

I equip of educational that qualified users of the net

He/she will be formed this team with egresados of the abilities that have careers related with Computer science. Of the he/she will be formed a permanent team that of continuous training and support technician.

For the training of users it is required of:

- Dos laboratories in net of 31 computers each one for training
- Up-to-date and appropriate software
- Programs of training
- Stationery and office inputs
- Connection to Internet
- Office furniture

Organization of the project

Phase 1: The specialists' preparation in the administration of the central node and formation of the capacitadores team.

- To select the personnel that will be formed or qualified to administer the Node
- Responsible for the area with emphasis in security as much for nets as for operating systems
- Administrator of the net
- Administrator of the Operative System
- Programmer for the creation and design of pages Web

To determine the formation type that will receive each one of the responsible ones mentioned previously, where they will receive it and the form in the time that you/they will be qualified.

Formation of the team of professors that you/they will make the training in Basic Computer science, electronic mail use and sailing in INTERNET, for users of the university community and the elaboration of Programs of Study and didactic materials.
Installation of the two exclusive laboratories for the training in Basic Computer science, electronic mail use and sailing in Internet, for the users of the university community of Managua.

This phase should begin in the second trimester of the year 2002, leaving of the flowchart for the address of the Technologies of Information and the Communication proposed by the superior address of the Unite-Managua.

Phase 2: Training of the personnel that he/she will work in the Systems of Information and attention to the user.

Once taken the decision of how to develop the Systems of Information you should proceed to the personnel's selection that will be responsible for the administration of the Databases and programs, as well as to those responsible for the respective systems to implement and at the same time to prepare the conditions for the training of each one of people that need the use of the automated system of information for their position.

To select the personnel that will have the responsibility of carrying out the maintenance and hardware repair and software of the enclosures, regional centers and investigation centers, for the bracket progression of their training.

Phase 3: To complete and to upgrade the training of the university community

To structure a plan of permanent training for the users of the TIC in the university community of the Unite-Managua., this way to guarantee the educational, administrative personnel's upgrade and student body.

At the end of the phases of training it is expected that:

Students, educational and executive staff in all the levels is able to use standard software (word processors, working sheets, databases), tools of Internet (electronic mail and sailing).

To exploit to the maximum these resources TIC (Example: Assignment of works of the students to the professors via e-mail; I use of the information managed independently by the systems in the different workstations of the geographical location).

To develop abilities in the use of the internal system of databases (Example: it Consults of the students of taken courses, I enter of the professors' notes via Web, etc.).

To achieve that the students and personnel academic more interactúen, through tools like electronic discussion forums, e-mail, etc., to a such point that the traditional ways of communicating are replaced in most of the courses.

Technological requirements and Materials

To fulfill the objectives proposed in the RURD it is required of two laboratories, equipped each one with the following:

- 1 canyon multimedia
- 1 Screen
- 1 net training LAN (switch, cables, connectors, etc.)
- 30 working stations for students
- 1 working station for the professor
- 31 UPS
- 1 acrylic slate
- 31 tables p/computadora
- 31 seats

Connection to Internet for the Net training LAN

Didactic material of bibliographical support

Chronogram of activities.

Budget.

DESCRIPTION	QUANTITY	COST / UNITARY	COST / TOTAL
Canyon	2		
Screen	2		
Switch of 48 ports	2		
Fund cable UTP	2		
Connectors RJ45	200		
Computers	62		
UPS	62		
Acrylic slate	2		
tables p/computadora	62		
Seats	62		
Manpower for installation of the net.			
Professors' payment			
I pay for elaboration of didactic material of the different training courses			
Connection to Internet for the Net training LAN			

System of Information of the Library

Introduction.

The Library is some of the services but essentials for the university. The Library is a center of information that provides to the professors and students with the materials that are needed for the teaching and investigation.

Along the history the Library has used the traditional system Melvin Wuey, without taking into account any type of on-line system. He/she went up to 1994 that one of the first versions of the system librarian incorporates MICROISIS through the combined effort of the Unite-Managua, the MED and the National Library of Nicaragua. This version of the system was developed to work in MS-DOS, but not in atmosphere of nets.

At the moment it is continued working with the system MICROISIS and it manages the modules of: it captures and edition of data (feeding of the Database) and recovery service, search and it consults (I classify). This system is only used by the personal one and not for professors, students and investigators.

Although the services Librarians lean on in the system MICROISIS, these they are taken and loaded with an excessive use of manual operations. All that makes the available personnel to neglect the orientation and instruction, reference services, attendance in the investigation and maintenance and creation of bibliographical helps. Consequently this ends up hindering the upgrade and acquisition of knowledge for the users.

The automation is considered one in the best ways of facing the growing demand to give a better service and to improve the deficiencies presented by the services rendered by the library. The idea is to develop a completely on-line integral system that contemplates a storage (through the digitization or microfilms use) and efficient access to the information and that it is able to be interconnected and retroalimentarse with all the other libraries of the Abilities, Regional Centers and of Investigation, and that it establishes a communication nexus with database to world level and nets of libraries (access to magazines, books and abstracts). The library this way will be able to provide essential information for the investigation and teaching in an efficient way.

Objectives.

General:

To develop an automated system of information for the access Library in real time (via Web) efficient and practical in all their operations and services at central level, of abilities, of regional centers and investigation centers.

Specific:

To analyze the different processes that are carried out in the Direction of the Library.

To identify the different processes that will be automated.

I design of the System of Information of the Library in atmosphere of nets.

To develop the System of the Library.

To interconnect the System from the Library to the net of the university.

To elaborate a technical manual and of end user.

Description of the components of the project.

The main components for the system of information of the Library are the following ones:

I modulate of acquisition

This modulates he/she acquires material of information in an efficient way for the collection of the library through purchase, donations and exchange, also providing a reliable form of control and to report the expenses that originate starting from the funds of acquisition.

This modulates he/she will take charge of processing the following information: bibliographical information of materials, name and addresses of suppliers of books and editorials, financial controls of acquired materials, the librarian's recommendations and status of these recommendations, form of acquisition, control of I not articulate received to generate birdcall, access to the I classify of the bookstore, statistic.

I modulate of consultation

He modulates he/she takes charge of presenting an interface of consultations to the collection (Author, title, matter, etc.), consultations with the help of data, I classify on-line and impression of the consultation (for Regional Centers, Abilities and investigation Centers).

I modulate of Inventory

This modulates he/she takes charge of keeping serial information permanently for reference, this goes him to get by means of generation of ranks of purchases for material of subscriptions and automatic warnings for renovation of wanted subscriptions, reception of materials and birdcall generation for not received materials, to maintain in an up-to-date way and I specify of particulars of the acquired material, on-line access of particulars of current articles and to produce statistical, financial and administrative reports.

I modulate of Circulation and Loan (bar code)

This modulates ready informative material to active users without records and it provides accessibility for the return of we lend them. The tasks that he/she takes charge they are: to determine easy and quickly that that that this in the material in the library and their localization, to send and to return material in an exact way, to verify their potential users is eligible for the loan service, preparation of notes to users with mulberry and reminder, to allow to the articles to be reserved and to provide necessary information when an I articulate it has been returned and to indicate when an user this trying to lend but I articulate of that allowed.

I modulate of classification and cataloguing

He modulates of I classify he/she leaves to take charge of qualifying the books and other documents of the library, it provided registration essentials for the access to the information. The function of this I modulate it is to process the assignment of the bar code, digitization or microfilm placement, impression of the entrance (you register bibliographical), verification of letterheads, pockets and it registers of we lend.

Organization of the project.

Phase 1: Analysis and design of the system, including the politicians of the university for the library.

The implementation of the system on-line debit side to be seen as part of a process of I redraw and implementation of operations to the but high-level. As first step, all the processes librarians, procedures and organizational focuses associated with the library should be analyzed, standing out inconsistencies and taking measured appropriate correctivas.

Phase 2: Searches of platforms, programming tools, and technical infrastructure.

Evaluation of existent functional requirements.

I design and specification of infrastructure techniques.

Preparation of a technical document.

Preparation of technical requirements for the bid.

Analysis of presented offers.

Taking of decision.

Contract negotiation.

Phase 3: Implementation of the system in the Central Node.

Hardware acquisition and software for the servant.

Installation of segments of nets in the servant.

Hardware installation.

Software installation in the servant of the system of the Library.

Implementation of safety measures and authentication.

Training for the administrator of the system of the Library (refers to Project of Training)

Phase 4: Implementation of the system in the address of the Library.

Installation of segments of nets for groups of works.

Software installation for remote access client.

Elaboration of the manual of the end user.

Creation and filled of database.

Training for the end user. (refer to Project of Training)

Technological requirements.

The system of the Library requires: hardware and software for the data processing and communication of data, entrance teams / exit, operating system, System Driver of Database (Database Management System - DBMS) and application software.

A servant dedicated for Database (RIYADH 5 with flaw tolerance)

Six stations of works (desk PC)

High-speed printer

System of wired structured in the main office of the academic address.

System UPS

Compatible Standard SQL to DBMS

Net Operating system.

Chronogram of activities.

System of the Library of they UNITE it - Managua.

Activity		First Year			Second Year		
Phase I	1. Analysis and design of the system including the political librarians	■					
Phase II	2. Evaluation of existent functional requirements.	■					
	3. I design and specification of infrastructure techniques.		■				
	4. Preparation of requirements and technical documents for the bid.			■			
	5. Analysis of presented offers.			■			
	6. Taking of decision			■			
	7. Contract negotiation			■			
Phase III	8. Acquisition of Hardware and Software for the servant.				■		
	9. Installation of segments of nets in the servant.					■	
	10. Installation of Hardware.					■	
	11. Installation of Software in the servant of the system of the Library.					■	
	12. Safety measure implementation and authentication.					■	
	13. Training for the administrator of system of the Library. (refer to Project of Training)					■	
Phase IV	14. Installation of segments of nets for groups of works.						■
	15. Software installation for remote access client.						■
	16. Elaboration of the manual of the end user.						■
	17. Initialization of the Database.						■
	18. Training for the end user. (refer to Project of Training)						■

Budget.

System of Academic Registration

Introduction.

The Student Academic Direction and Statistic of the university plans, it organizes, it coordinates, it directs and it controls all those activities related with the admission and the student's registration, transfer, equivalences and graduation.. Equally it unites to their position the maintenance and it guards of the Records of the qualifications of the students and any other important information that he/she has to do with the same thing.

Because of the nature of the work and data that are processed, the address of registration academic has direct relationship with all the academic areas of the university, abilities, investigation center, regional centers, student services, medical registration office, graduate degree office and financial address.

Due that many of these processes are carried out in a manual way, considerable delays take place in the academic controls of the students, such as:

- The registration process is slow and annoying
- The Records of Qualifications don't come out complete
- The Reports and Reports are incomplete, with errors (big margin) and late
- The information is not safe
- The controls are not appropriate
- The security of the information is not 100%
- The speed and effectiveness of the delivery of the information is not adapted
- The statistical information and the process of of obtaining it is slow and annoying

For the above-mentioned it is necessary to implement a system of academic registration that allows an administrative service and of student control. These are:
personal registration,
academic registration,
yield analysis,
registration and admission,
exams,
courses,
information has more than enough access of resources and professors,
calendar of classes,
curricular control,
control of courses,
control financial of the students,
system of on-line database (via Web) for search and reports of data related to the students and statistic.

The implementation of the System of Registration Academic goes to allow to give one restored more efficient to the necessity of information of the personnel in charge of the abilities and of the personnel of the area of the central academic registration in more efficient form that the partially automated system that so far one has come using. What is pursued therewith is to improve the security of the information and the offered services to the students and other institutional framework this is gotten through an automated process of data that keeps, it recovers and it controls the whole registration information at operational level (admission, registration, exams and grade exams, etc.) and also administrative tasks as planning, evaluation and taking of decisions.

Also to speed up the capacity of transactions of data decentralized with the one that one works at the moment, the student's academic yield, planning and the student's general registration, in agreement with the current growth and the students' future, academic programs, etc.

This system automated at the moment in comparison with the procedures in use, would come to improve the function ability of the procedures according to the requirements to optimize the planning, control and evaluation processes related with the academic analysis of the students and the quality of the academic programs.

Others of the benefits that it would be obtained would be to provide to the university with a database of the students that can be maintained, managed and upgraded by all the areas of the same one, which need for their nature personal data of the students, academic record and curricular data.

Objectives

General:

To develop a system of registration automated academic that manages and process in an efficient and sure way the student academic information at central level, of the abilities and of the regional centers.

Specific:

To analyze the different processes that are carried out in the Direction of Academic Registration,
To identify the different processes that will be automated,
I design of the System of Information of Academic Registration in atmosphere of nets,
To develop the System of Academic Registration,
To elaborate a technical manual and of end user,
Statistical System.

Description of the components of the project.

The main components for the system of information of Registration Academic are the following ones:

Module of Registration of the Program Academic Course

To strengthen the development it programs academic and course calendar, the university has to maintain a great quantity of data in each academic course, this module provides to the abilities and regional centers the capacity to administer and to maintain a database with the characteristic of a course, some of the main characteristics contained in this database are: identification of the course, description, organizational method (you confer, laboratories), restrictions (prerrequisito, graduate), resources requeridos(equipos, class living room, materials for the course, books), required academic abilities and students' maximum number for class.

Module of Plans of Study and Programs and class Calendar

This module supports the coordination of the approved subjects, the class living room and the professor (and other resources) available. Also help to determine where and when and during that term the subjects, they will be offered. The main data maintained by this module are: requirements of spaces (you date, special equipment, calendar, responsible person, I use and assignment facilities), calendar of classes (numeric badge of subject, professor, place, period of time and restriction).

Location module and admission

This module provides the action to register and to store data and the student's information, it embraces the admission process and the student's registration, upgrade of the student's personal data and historical registrations.

Registration module and control of the student's yield

This module allows that to the admitted students it is assigned him the number of identity, ability, career and/or it programs, the subjects and it enables them to arrive to classes. Also this supposition to incorporate the calendar of subjects in which is the student with the offered subject during the academic period. Example of this is: the student's identification, subjects, schedules, payment status, hours, etc.

This module also contains the registration of the results of the exams, works, systematic and the students' final qualifications. It tries with academic activities carried out by the students and results obtained by these. For example notes for subject, attendance,

qualifications of other universities or school, historical indicators of payment, disciplinary control and academic status.

Storage module and Receipt of the information

This module besides showing the whole stored information, will be able to print data provided by the system, as for example note certificate, diploma, registration of qualifications, control card, form for renovation of it registers, it lists of exams, confirmation of exams. Administration of the the information, as for example statistical report related with the student's social status, the student's progress, percentage of graduate, percentage of those that move away class and been by subjects.

Module of Statistical

Report statistical related with students' number for ability, career and sex; for cycles academic; inscription percentage for nucleus; students of first entrance for ability, and academic cycle; index of the students' occupation for academic cycle; inscription for ability and country of nationality, state ci and age in the academic cycle; you Grant a scholarship and discharges in the academic cycle; total of having graduated by career and ability; evolution of the registration for careers in the academic year; total registration and their distribution for sex; evolution of it registers it per annum of first entrance academic, projection of it registers it for the next five year period, personal educational for category and abilities in the academic cycle; evolution of the educational personnel in the academic year; receipts and payments of the Unite-Managua in the academic year, distribution for nuclei of the one presupposed of the Unite-Managua in the academic year. It registers and state contribution for students in the academic cycle; budgeted revenues and real revenues of the Unite-Managua in the five year period.

Organization of the project.

Phase 1: Analysis and design of the system, including the academic politicians.

The implementation of the system on-line debit side to be seen as part of a process of I redraw and implementation of operations to the but high-level. As first step, all the academic processes, procedures and organizational focuses associated with the academic thing should be analyzed, standing out inconsistencies and taking measured appropriate correctivas.

Phase 2: Searches of platforms, programming tools, and technical infrastructure.

Evaluation of existent functional requirements.

I design and specification of infrastructure techniques.

Preparation of a technical document.

Preparation of technical requirements for the bid.

Analysis of presented offers.

Taking of decision.

Contract negotiation.

Phase 3: Implementation of the system in the Central Node.

Hardware acquisition and software for the servant.

Installation of segments of nets in the servant.

Hardware installation.
 Software installation in the servant of the system of Academic Registration.
 Implementation of safety measures and authentication.
 Training for the administrator of the system of Academic Registration (refers to Project of Training)
 Phase 4: Implementation of the system in the academic address.
 Installation of segments of nets for groups of works.
 Software installation for remote access client.
 Elaboration of the manual of the end user.
 Creation and filled of database.
 Training for the end user. (refer to Project of Training)

Technological requirements.

The system of Registration Academic requires: hardware and software for the data processing and communication of data, entrance teams / exit, operating system, System Driver of Database (Database Management System - DBMS) and application software.

A dedicated servants for Database (RIYADH 5 with flaw tolerance)
 Six stations of works (desk PC)
 5 printers (Of desk)
 High-speed printer
 System of wired structured in the main office of the academic address.
 System UPS
 Compatible Standard SQL to DBMS
 Net Operating system.

Chronogram of activities.

System Academic Registration of they UNITE it - Managua.								
Activity	First Year	Second Year						
Phase I 1. Analysis and design of the system including the academic politicians.								
Phase II 2. Evaluation of existent functional requirements.								
3. I design and specification of infrastructure techniques.								
4. Preparation of requirements and technical documents for the bid.								
5. Analysis of presented offers.								
6. Taking of decision								
7. Contract negotiation								
Phase III 8. Acquisition of Hardware and Software for the servant.								
9. Installation of segments of nets in the servant.								

	10. Installation of Hardware.								
	11. Installation of Software in the servant of the system academic registration.								
	12. Safety measure implementation and authentication.								
	13. Training for the administrator of system of academic registration. (refer to Project of Training)								
Phase IV	14. Installation of segments of nets for groups of works.								
	15. Software installation for remote access client.								
	16. Elaboration of the manual of the end user.								
	17. Initialization of the Database.								
	18. Training for the end user. (refer to Project of Training)								

Budget.

System of Financial Information

Introduction.

Before 1996 the University didn't have any type of automated system for the financial area. The processes were carried out then in a manual way and they were repetitive, inefficient and very few clearings; providing inadequate information for the taking of decisions. He/she went up to 1996 that an automated system was acquired developed by a Mexican

Company. This system already takes almost working 6 years and it only embraces accounting modules, banks, inventory and fixed files. It also contemplates two modules but that are not at the moment in use (you count to get paid and you count to pay) but that they are still in supporting process and adaptation.

Additionally the center of I compute of the university it has developed the modules of it nominates, box, bank reconciliation, you count to get paid and you count to pay so that they run in a parallel way with the system in use. The system this designed to work in atmospheres of nets but with a safe-deposit minimum. One of the factors that contribute to that the system is not very safe is that it is not had a dedicated servant for the same one. Also this designed to work in a centralized way, this always requiring of changes and it doesn't contemplate all the necessary modules so that he/she works in an integral way.

All this results in that you/they cannot take decisions to give answer in time and it forms to the necessities and expectations of the administrative authorities and academic sector. The current system doesn't allow to identify the sources of finance for the execution of expenses that he/she makes but taken the necessary time for the authorization of the same ones. The fact that the system is not integrated and that independent modules exist he/she results since in the redundancy of information much of her he/she has to be recorded so much in the current system as in the modules developed by the center of I compute.

The expansion of the University in a near future not only intensified if it didn't also diversify the financial operations, the volume of transactions has already been increased at a level that requires an integral automation. The establishment of a sustainable and administrable financial system of information is consequently something I criticize and of vital importance for what becomes necessary the implementation of a new integral system that is able to process in a sure way all the financial operations.

Objectives.

General:

To develop an automated financial system of information that controls and apply from way efficient processes of financial administration to central level of abilities, regional centers and investigation centers.

Specific:

To analyze the different processes that are carried out in the Financial Direction.

To identify the different processes that will be automated.

I design of the System of Financial Information in atmosphere of nets.

To develop the Financial System.

To interconnect the Financial System to the net of the university.

To elaborate a technical manual and of end user.

Description of the components of the project.

The main components for the system of financial information are the following ones:

I modulate of Accounting

He modulates of accounting it provided periodic countable reports and income tax returns, costs and balances when it is required, it will allow to create the bills of Ledger and to define since the period of financial planning of the university it will also produce a list of bills maintained by the countable system, other modules provided data to the I modulate of ledger, the bills of the ledger will also be connected to the budget of the ledger.

I modulate of Fixed asset

He modulates of fixed asset it maintains registrations of teams, estates and other assets that it possesses the university. The registrations include the original cost of the assets, the depreciation range in each asset or group of active, the accrued depreciation so far the current value of the assets or the original cost less the accrued depreciation, the transactions financieras taken place for this I modulate they will be used for the I modulate of the ledger to maintain long term up-to-date balances of several assets in the bills of the university.

I modulate Bills to get paid

I modulate of bills to get paid it will allow the users to register, to upgrade and to erase concerning information to changes for bought products and services rendered to employees and students, the type of data of which fed the I modulate of bills to get paid it includes debtors' upgrade in the registration teacher, sales and invoices and debtors' received payments, the bills that you recepcionan will be able to care or to use data interactively of personal (employees) maintained inclusive by the system of human resources it can provide data of financial transactions that it feeds to the I modulate of accounting and to receive data of carried out purchases.

I modulate of Bills to Pay

This modulates it will allow the users to register, to upgrade and to erase information related to those worthy of the university (people or other organizations) it also provided information at operational level that can be used to program payments to creditors. The data of which he/she fed this I modulate they will be the creditors' data teachers, information on the bill of the creditors and registrations of receipts. He modulates of bills to pay debit side to provide data of financial transactions to the I modulate of ledger and to receive data of purchases.

I modulate of schedule and payment of wages

This modulates he/she kept a registration of the wages, retentions viáticos and incentives for the whole personnel that this employee for the university. You should include like part of the data to be recorded the employee's personal data, functions (contract type and classification of the employment), wage, deductions, absences, hours extras, additional allowed maxima (rent of houses, INSS and sure), benefits (for example periodic ascents) and special arrangements (E.g. Employments of half time). He modulates it will be able to calculate list of transferred money, receipts of payment, payment of GOING and I pay of employees (respecting regulations of the ministry of the work). It leaves of the needy data for the prosecution of the wages it was inside the I modulate of human resources

(Contracts, employees, absences and hours extras). It will also include maintenance of the usual components of the schedule, I calculate automatic of the total wage, impression of individual receipts of payment and wage leaves (detail of payments), cost accounting and generation of vouchers of payments with interface to the ledger system.

I modulate of budget

He modulates of budget it is vital in the taking of decisions in the university since help to the same one to reach their goals by means of the organization of their resources. The budget inside the university is the process of presenting in quantitative form the planned activities of the University for a period of given time, the budget that you/they are the prepared quantitative elements through the budgetary process includes such elements as projected revenues and expenses. The budget typically is prepared and controlled by the university like an everything (department, abilities, investigation centers, etc.).

A budget system often this in near relationship with the I modulate of the ledger. This allows to the budgotten quantities to be introduced by the account number. The wornout or received current quantities are registered by means of the I modulate of the ledger or by means of I modulate for bill to pay. Periodically, weekly, monthly or annually or I lower it bases periodic the budgetary quantities and the current expenses can be compared and reported. Examples of this are resources of comparative current budget with entrance and expense of a date specifies; budget variant or he/she differs between projected quantities or current cost, resources of comparative current budget to resources of the last year. The reports of budgets will be prepared every so often by the abilities, investigation centers, regional centers and for the university like an alone one.

I modulate of consultation with the help of Data

For the access to report and consultation the countable database of the university will be used by the administration of the abilities and departments, it can also be beneficial to use applications for end user, such as leaves of works and graphics to analyze the budget and current expense. These applications will allow the administrators to make observations about the budget.

I modulate of audit

This modulates you attended with the audit of the expense of the university and countable processes.

I modulate of inventory

This modulates it takes a control of the chattels and immovableses, I calculate of the paying-off of the patrimony contemplating the whole casuistry and registration of historical and computer goods.

I modulate of Projects

This modulates it takes the control of the rregistros of all the data associated to the investigation projects and investment, the budgetary one and for concepts of the expenses and revenues of the project, the retentions of general expenses, the justification of the funds and the control automatic transfers of funds among projects.

Organization of the project.

Phase 1: Analysis and design of the system, including the financial policies.

The implementation of the system on-line debit side to be seen as part of a process of I redraw and implementation of operations to the but high-level. As first step, all the financial processes, procedures and organizational focuses associated with the finances should be analyzed, standing out inconsistencies and taking measured appropriate correctivas.

Phase 2: Searches of platforms, programming tools, and technical infrastructure.

Evaluation of existent functional requirements.

I design and specification of infrastructure techniques.

Preparation of a technical document.

Preparation of technical requirements for the bid.

Analysis of presented offers.

Taking of decision.

Contract negotiation.

Phase 3: Implementation of the system in the Central Node.

Hardware acquisition and software for the servant.

Installation of segments of nets in the servant.

Hardware installation.

Software installation in the servant of the financial system.

Implementation of safety measures and authentication.

Training for the administrator of the financial system. (refer to Project of Training)

Phase 4: Implementation of the system in the Financial address.

Installation of segments of nets for groups of works.

Software installation for remote access client.

Elaboration of the manual of the end user.

Creation / conversion and filled of database.

Training for the end user. (refer to Project of Training)

Technological requirements.

The system of financial information requires: hardware and software for the data processing and communication of data, entrance teams / exit, operating system, System Driver of Database (Database Management System - DBMS) and application software. Specifically the required elements are:

A dedicated servant for Database

15 stations of works (desk PC)

5 printers (Of desk)

A high-speed printer

System of wired structured in the main office of the financial address.

System UPS

Compatible Standard SQL to DBMS

Net Operating system.

Chronogram of activities.

Financial System of information of they UNITE it - Managua.								
Activity	First Year				Second Year			
Phase I	1. Analysis and design of the system including the financial policies.	■						
Phase II	2. Evaluation of existent functional requirements.	■						
	3. I design and specification of infrastructure techniques.		■					
	4. Preparation of requirements and technical documents for the bid.			■				
	5. Analysis of presented offers.			■				
	6. Taking of decision			■				
	7. Contract negotiation			■				
Phase III	8. Acquisition of Hardware and Software for the servant.				■			
	9. Installation of segments of nets in the servant.					■		
	10. Installation of Hardware.					■		
	11. Installation of Software in the servant of the financial system.					■		
	12. Safety measure implementation and authentication.					■		
	13. Training for the administrator of financial system. (refer to Project of Training)					■		
Phase IV	14. Installation of segments of nets for groups of works.						■	
	15. Software installation for remote access client.						■	
	16. Elaboration of the manual of the end user.						■	
	17. Initialization of the Database.						■	
	18. Training for the end user. (refer to Project of Training)						■	

Budget.

System of Human resources

Introduction.

The human resources inside the university play a fundamental paper since inside the same one they are these those that allow us to reach the objectives and goals of these. These resources should be used appropriately due to the difficulty of to find and to maintain their high cost.

Because most of the expenses of an university concentrates in "human resources" it becomes necessary to concentrate special efforts on the development and control of these.

The use of manual systems based on the software support like the electronic spreadsheets and word processors presents weaknesses for what becomes necessary to find an alternative to improve the service that you offers to the worker.

The above-mentioned has given origin to a series of such problems as:
Difficult access to the data.

Too much information in paper to be administered efficiently by the personnel.
Slowness to generate the information on time.

Objectives.

General:

To develop an automated system of information of human resources that controls and apply from way efficient administration processes to central level, of abilities, of regional centers and investigation centers.

Specific:

To analyze the different processes that are carried out in the Direction of Human resources.

Identificar the different processes that will be automated.

I design of the System of Information of Human resources in atmosphere of nets.

To develop the System of Human resources.

To interconnect the System of Human resources to the net of the university.

To elaborate a technical manual and of end user.

Description of the components of the project.

With the purpose of improving the levels of efficiency in the internal check of the information this system will contemplate the following areas: control of personal, file unit, payroll office and attention to the worker.

File unit

This component of the system should constantly upgrade the information of the personnel of the institution, what will allow consultations to workers' files and generation of reports (such as: Changes of educational categories, trabajadores(activos Classification, of low, change), economic Recognitions for years of service).

Office of Payroll

This component of the system should complete in time and it forms the elaboration of you nominate, of ranks of payments, INSS, to GO, deductions and reports (it has more than enough payments and expenses), control of wages and control of own funds.

Attention to the worker

With this component of the system it is sought to offer a good attention to the worker guaranteeing the benefits that are granted by means of expense controls electronically. This module will also include on-line administration of attention odontológica, services oftalmológicos, payment of viáticos of transport, administration bottom for pension, rent of housings, lingering permits, nutritious subsidies, control of vacations and control of attendance of the executive staff.

Personal

This component should process information related with political of human resources, requirement plans of personal to short and I release term, recruiting of personal, acting evaluation, training of personal, gives up and discharge of personal.

Organization of the project.

Phase 1: Analysis and design of the system, including the politicians of Human resources.

The implementation of the system on-line debit side to be seen as part of a process of I redraw and implementation of operations to the but administrative high-level. As first step, all the procedures and focuses organizational associates the area of human resources should be analyzed, standing out inconsistency and taking measured appropriate correctivas.

Phase 2: platform Search and programming tools, and technical infrastructure.

Evaluation of existent functional requirements.

I design and specification of infrastructure techniques.

Preparation of a technical document.

Preparation of technical requirements for the bid.
 Analysis of presented offers.
 Taking of decision.
 Contract negotiation.
 Phase 3: Implementation of the system in the Central Node.
 Hardware acquisition and software for the servant.
 Installation of segments of nets in the servant.
 Hardware installation.
 Software installation in the servant R.H.
 Implementation of safety measures and authentication.
 Training for the administrator of the system of Human resources. (refer to Project of Training)
 Phase 4: Implementation of the system in the address of Human resources.
 Installation of segments of nets for groups of works.
 Software installation for remote access client.
 Elaboration of the manual of the end user.
 Creation / conversion and filled of database.
 Training for the end user. (refer to Project of Training)

Technological requirements.

The system of human resources requires: hardware and software for the data processing and communication of data, entrance teams / exit, operating system, System Driver of Database (Database Management System - DBMS) and application software.

Dos dedicated servants for Database (RIYADH 5 with flaw tolerance)
 Six stations of works (desk PC)
 5 printers (Of desk)
 High-speed printer
 System of wired structured in the main office of human resources
 System UPS
 Compatible Standard SQL to DBMS
 Net Operating system.

Chronogram of activities.

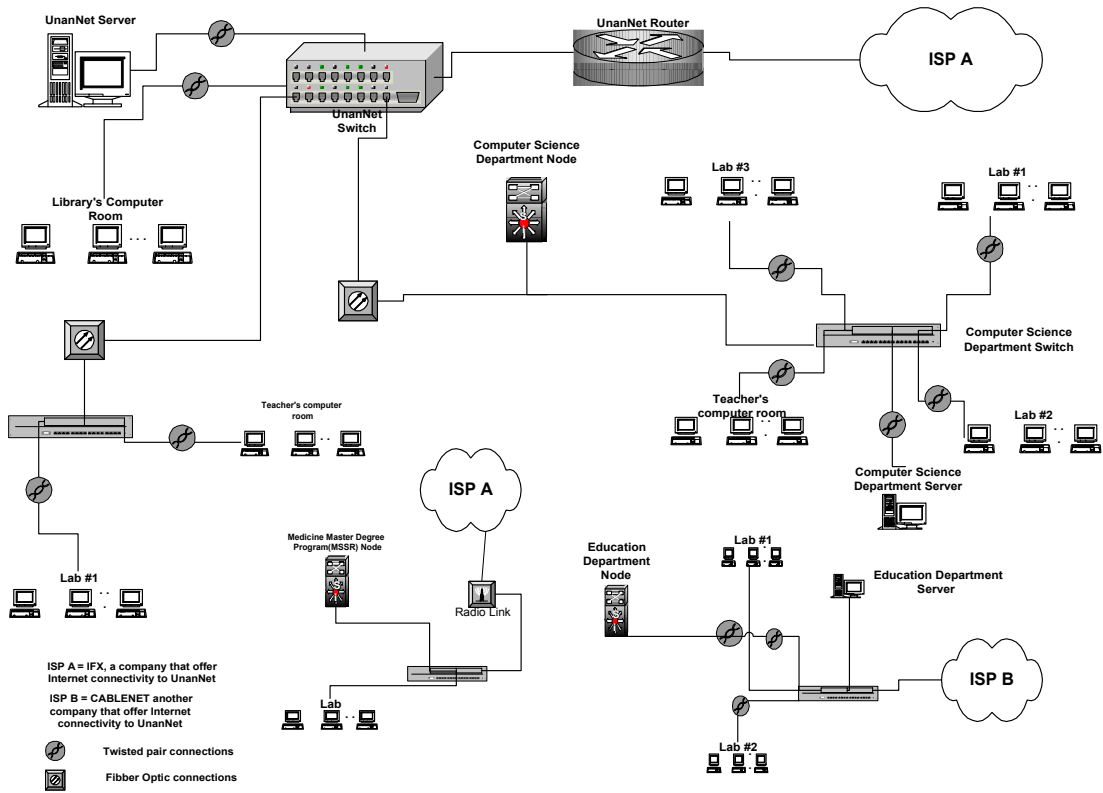
System of information of Human resources of they UNITE it - Managua.									
Activity		First Year				Second Year			
Phase I	1. Analysis and design of the system including the politicians of Human resources								
Phase II	2. Evaluation of existent functional requirements.								
	3. I design and specification of infrastructure techniques.								
	4. Preparation of requirements and technical documents for the bid.								
	5. Analysis of presented offers.								

	6. Taking of decision								
	7. Contract negotiation								
Phase III	8. Acquisition of Hardware and Software for the servant.								
	9. Installation of segments of nets in the servant.								
	10. Installation of Hardware.								
	11. Installation of Software in the servant R.H.								
	12. Safety measure implementation and authentication.								
	13. Training for the administrator of system of R.H. (refers to Project of Training)								
Phase IV	14. Installation of segments of nets for groups of works.								
	15. Software installation for remote access client.								
	16. Elaboration of the manual of the end user.								
	17. Initialization of the Database.								
	18. Training for the end user. (refer to Project of Training)								

Budget.

ANNEXES

Actual Network Infraestructure on UnanNet



Projected Network Infrastructure

