International Journal of Advanced Academic Studies

Rafiqullah Baryalai
University of Sayed Jamaluddin Afghani, faculty of Computer Science, Asadabad, Kunar, Afghanistan

Organizational structure analysis of information technology center at Sayed Jamaluddin Afghani University

Rafiqullah Baryalai

Abstract
As the title implies the main purpose of this paper is the Organizational structure analysis Of Information Technology Center at Sayed Jamaluddin Afghani University, in the current situation there was lack of Information Technology professionals and expert staff, which was a Problem, because without expert IT staff and Organizational structure this is impossible to successfully run or Operate the information Technology Center, therefore the paper suggested Organizational structure and professional staff for the Information Technology Center such as: IT Manager, system administrator, network administrator, database administrator, application administrator, Tester, Implementer, lecturers, technical staff, guards, and Cleaners. Beside this the paper explained the responsibilities and duties of suggested Information Technology professionals staff with elaboration, and for the University Staff Capacity Building Multiple Information Technology Trainings are described with details, which will improve Information technology knowledge of Sayed Jamauluddin Afghani University.

Keywords: Organizational structure, information technology center, University of Sayed Jamaluddin Afghani

Introduction
Organizational Structure
All Universities and institutions of Higher education in Afghanistan require a powerful organizational and administrative structure, that can support sustainability, modernization, and coordinates human resources, and their IT supply in teaching, research, studies, and further academic training as well as in the technical administration. So in this regard the Universities in Afghanistan need clear, standardize, and well-set, IT structures with a stable and reliable rule of competencies and responsibilities [1, 2, 18]. Thus, to have standardize, active, and well functioning Information Technology Center (ITC) in Sayed Jamaluddin Afghani University. Then there must be a strong consideration about the organizational structure which making the Metain body of Information Technology Center design or structure. Currently The University of Sayed Jamaluddin Afghani has neither a dedicated IT center (Information Technology Center) and nor Organizational structure within the University. There is a Directorate with the name of IT which has no technical staff and the necessary equipment that belongs to the IT center and related matters. Besides this, the very big problem is the person who is hired by University for the IT Directorate he was not professional of IT. Even though he did not have Bachelor or any other degree of IT. He was just graduated from the high secondary school. During writing this paper, I had interviewed with him, and I have asked him do you have Information Technology Center facilities, if yes then what do you need for it? Then he told me that (I do not know IT and IT Center I just Know how to send and receive E-mails). I wondered and it was quite sad to me because he did not have any basic background about IT. And how he would be able to run Information Technology Center, it would be impossible. So, in this case, there must be a strong consideration about hiring staff for IT Center. My suggestion from Ministry of Higher Education and especially the chancellor of Sayed Jamaluddin Afghani University they have to pay special attention, about professional staff for IT Center. Currently, the faculty of computer Science in Sayed Jamaluddin Afghani University graduated about six hundred (600) students from two departments (Information Technology and Software Engineering). So this is a good news for University to hire professional staff for IT Center. Because previously there was the lack of professional people in Kunar province at Sayed Jamaluddin Afghani University,
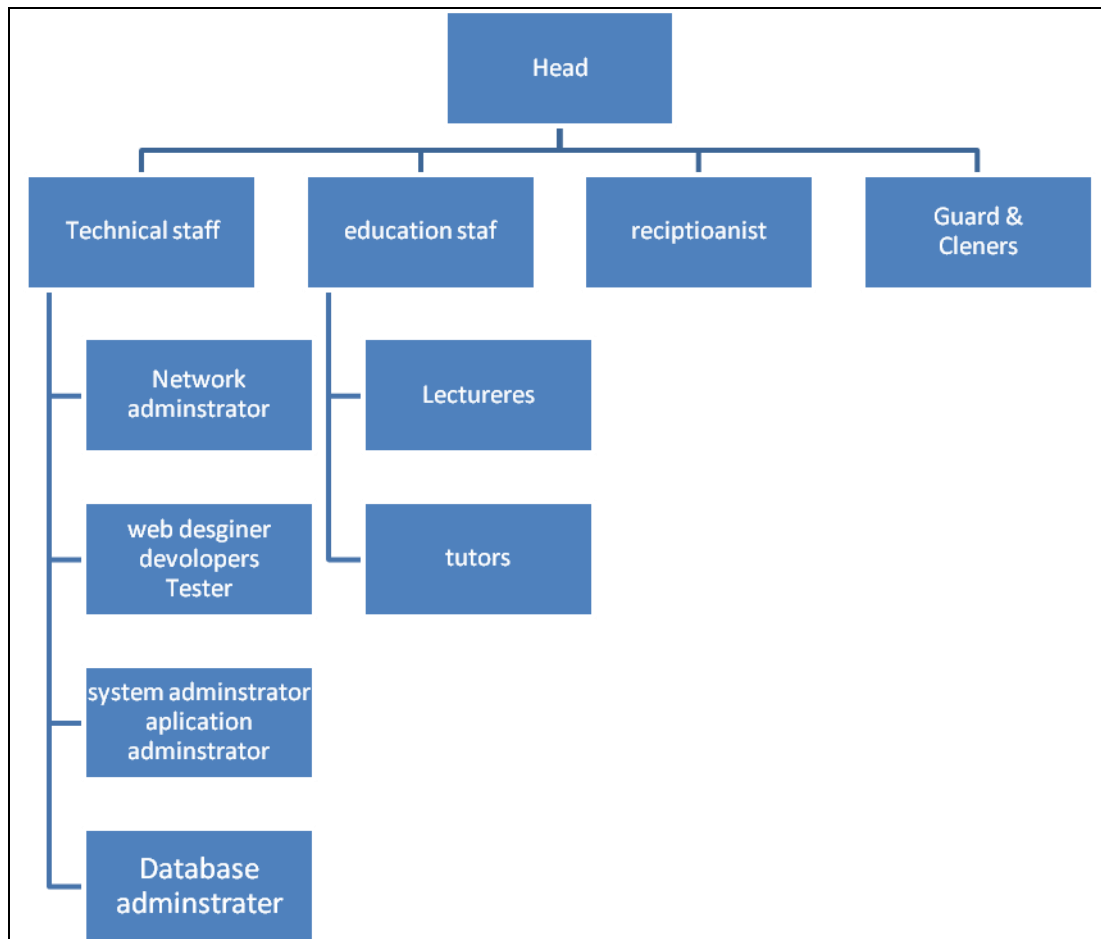
Corresponding Author:
Rafiqullah Baryalai
University of Sayed Jamaluddin Afghani, faculty of Computer Science, Asadabad, Kunar, Afghanistan

because from other provinces no one was coming to Kunar Province due to many reasons, for instance, far distance, security situation, less salary and etc, the problem is there are no positions and staff assigned for IT In Universities. As Kakar, (2010) Explained: having a very well-functioning IT Center within university there Must be the well organizational structure with qualified professional skill sufficient employee. To gain the goal and provide IT services for the university. As in Afghan universities, the concept of IT centers are new subject of matter, there is no positions and personnel assigned for IT services from the Ministry Of Higher Education (MoHE). There was a plan from Ministry of Higher Education to add IT staff and IT centers to the framework of Universities. But yet it is on the road and not implemented. The another way is to follow the organizational structure of Information Technology Center of Kabul (ITCK), and Information Technology Center of Herat (ITCH), which are already established by TU-Berlin and have standard organizational structure. It follow the

Top-down approach where only one single Manager organizing all the administration Management of IT Center. And all other staff reports to Manger. Staff of IT Center include: Network/system administrators, lecturers, tutors, receptionist, guards, and cleaners'. The lecturers are deputed from Computer Science (CS).tutors are the graduate and undergraduate students of the Computer Science faculty. The students of Computer Science can be also members of the IT centers as tutors for IT center and there is a certain amount of salary for them. As currently there are five IT Centers running in multiple Universities of Afghanistan such as Information Technology Centers Kabul, Herat, Balkh, Qandahar and Nangarhar (ITCK, ITCH, ITCB, ITCQ and ITCN) [6, 7, 9, 11]. Which have to standardize organizational structure and qualified staff. So these IT Centers should be module for new establishing IT Center like Sayed Jamaluddin Afghani University IT center. The organizational structure for Sayed Jamaluddin Afghani University is as following:

Fig 1: Proposed organizational structure for IT center [18]

Administration staff

According to organizational structure to run the IT Center then there is need a well-qualified administration staff. Which consist of IT Manager, system administrator, network administrator, database administrator, application administrator, Tester, Implemender, lecturers, technical staff, guards, and Cleaners, The administration staff should control the whole IT center services like management of the affairs the duties of and administrators, task distribution etc, manage the tasks and provide the IT services, security the first and important administration member who is

responsible for overall activities of IT center is the Manger of IT Center. The Manger Must be professional and familiar with IT activities to be able to Mange properly and plan IT services for the University. There must be IT specialist and have to have knowledge about challenges and problems that IT Center faces in running time, the Manger Should be able to overcome or find appropriate solutions for it [13, 14, 18]. Beside this, another responsibility of IT Center Manger is financial Management of the IT Center and has to follow all financial issues for Example: preparing the financial documentations of the staff Salaries, procurements and

gives the report to the University administration. Also responsible for giving the progress report to the chancellor of University. For the further improvement of IT at the University, the Manger has to make suggestions and presents annual report to the chancellor of the University. And chancellor of the University will send that report to the Ministry of Higher education. The manager needs to have the program for daily, weekly, and monthly activities, training; the motivation of the staff conducted the workshop, seminar, Conferences etc. [10, 6, 18] As the IT Center Manager is important person for the IT Center management it is better to mention all the responsibilities of IT center Manager as following:

- The manager of IT is responsible for overall activities like management of IT environment,
- Coordination of IT projects,
- Education in the area of IT,
- Supervising and leading all section of IT center,
- Providing IT services to the University,
- Answering all questions of university administration related to IT,
- Keeps a close cooperation with the IT department of the Ministry of higher education,
- Establishing close relation with IT centers of other Afghan Universities for Exchanging experiences and knowledge to increase the operation of IT Center,
- Leading the IT Center team assigning tasks to them and supervising the progress of these tasks, therefore, all staff has to report to him about their work,
- As leader of the IT Center staff, he is responsible for considering about technical issues of the different Users and facilities,
- The Manager of the IT Center has to update the rules and regulations, which ensure a safe and normal operation of all facilities of the IT Center,
- IT security is important factor the head of Information Technology Center is responsible enforcing regulations of a secure operation of the IT infrastructure, all sections will be instructed to act in accordance with these regulations he is drafting guidelines for IT security within the University, organization of events Conferences and workshops on different topics shall be realized on regular basis [2, 3, 5, 18]. Other administration staff that are controlling and managing the network, servers, firewall, databases, and security of IT Center as following:

Network Administrator is responsible for managing the network and security of data flow as well as to manage firewall and control the network traffic. System Administrator is responsible for managing the health of the Server Operating system. The system Administrator should be expert of Operating system and must know how to troubleshoot, how to setup and how to manage properly etc. for the small center Network Administrator also manage the Operating system and there is no need for system administrator but my suggestion for Sayed Jamaluddin Afghani University ITC, there should be both Network administrator as well as system administrator. Because the Sayed Jamaluddin Afghani University faculties staff and students are increasing year by year, For this reason, the IT Center has to be scalable and flexible. The database administrator is responsible for managing the health of the

databases. For example to manage recovery system of database, backup system of database and security of Database etc. Application Administrator is responsible for managing the health of specific applications. Application Administrator has to configure the application software according to the need of IT Center for instance oracle and enterprise resource applications. An application administrator is also responsible for installing printers, scanners, and any application software on the server as well as in desktops. Some small application software can be install directly on the desktop but most of the other could be configured and install from the server. Programmer /developer is responsible for creating a new software or modifying a software. The programmer/developer must be expert of computer languages like Java, python, C, C++, PHP etc, and Tester is responsible for testing applications which created or modified by the programmer, the tester is an expert of testing software. When the programmer creates software then before handed over to implementation it should test to check the quality and functionality. Implementer to implement prebuilt applications like company patches the new software the implementer have to know the functionality of that software and have to configure and setup that software, Implementer also called functional consult and functional expert [18, 22, 19, 21].

Technical staff
As the main operative of Information Technology Center are technical personnel those who are really dealing with technical infrastructure of Information Technology Center, so in this regards it is important to have well trained, qualified, IT specialists technical staff for IT Center to run well and proper functioning IT Center [18, 22]. The technical staff must be able to control all technical related activities in IT Center, for instance: configuration of Servers, Routers, Switches, and Firewalls, managing network, network traffic, database, web design, Pc workshop, security of all. Currently in Sayed Jamaluddin Afghani University there is the lack of technical staff [18]. Technical staff should be hiring for IT Center. But the chancellor of University must consider well qualified and professional Technical staff. During the hiring of technical staff for Sayed Jamaluddin Afghani University IT Center the lecturers of Computer Science faculty have to be present to select the eligible Technical staff for Information Technology Center. My suggestion is the technical staff should be full time not part time like students of Computer Science because the Information Technology center need at least 12 hour and at most 24 hours running time during the day and night. Students of Computer Science can be there but as assistant technical staff [18, 22]. For getting experience and learning and against less amount of salary. But for the full-time Technical staff the salary have to be convenient and enough. Otherwise technical staff will not keep continuing the work. because during Writing this paper when I visited Information Technology Center (ITCN) of Nangarhar University most of the administration staff especially technical Staff was complaining about them salaries they said that these salaries are very less and it is not enough for our daily life. Therefore if the salaries do not increase then the technical staff will have been stopping the work and that would be a big problem because hiring new technical staff over and over is not a good Idea. It is better to consider the increase of the salaries. As Sayed Jamaluddin Afghani

University is in rural and remote area than other Universities, in this case, it is impossible to get support and help from other close resources. Therefore, there must be long-term and short-term training to the Technical staff. There should be the close relation among other IT Centers technical staff to collaborate each other, Especially Sayed Jamaluddin Afghani University technical staff. There should be strong communication among IT Centers when any IT Center encountering the technical problem than other IT Center will be able to solve that problem. The number of technical staff, duties, and responsibilities of Sayed Jamaluddin Afghani University's IT Center should be same like other five IT Centers e.g. Information technology Centers of Kabul, Herat, Balkh, Nangarhar, and Qandahar (ITCK, ITCH, ITCB, ITCN, and ITCQ [1]) [18, 7, 9, 11].

IT Education

IT education is one of the important concerns of Information Technology Center that is really required and indispensable for the university personnel, one of the main and core task of IT Center is to supply IT knowledge to the University staff, as well as students. The IT education staff is responsible for providing basic and advanced training in the area of IT for the university members. The IT staff should offer special training for IT administrators from other faculties of the university to increase their skills and knowledge and to enable them to administrate the PC labs and networks in their faculties [5, 10, 21]. currently at the Sayed Jamaluddin Afghani University there is lack of IT education, all the staff such as lecturers, administrative staff, and students really need IT knowledge, there should be IT Basic and advanced training and beside this special IT curriculum have to be developed, the curriculum have to be developed according to the need of the university staff, and IT Center staff. First of all IT education team need to be trained after that this trained team can train university staff as well as IT Center staff. There should organize classes and training like hardware classes, application classes, internet classes etc... The basic require training which, Peroz, (2008) stated as following:

- Hardware trainings.
- Basic training for the students.
- Advanced training for the students.
- Training for the university employees.
- Training for the executives.
- Special training for the women.
- Classes for teaching assistants.
- Training for network administrators.

Hardwar training: is one of the important and require training for the university employees the main purpose of the hardware training are that every participate of Hardwar training at the end of the training have to be able at least to know the name of the computer hardware and functions of it. Which is the basic condition for the IT knowledge as the name implies this training should be mostly practical for the more improvement, there should be final exam at the end of training for the participations. Those who passed the training exam the certificate should be provided to get

opportunity for advance hardware training. This way will overcome all hardware related problems for the Sayed Jamaluddin Afghani University [18, 19].

Basic trainings for the students: the students of Sayed Jamaluddin Afghani University really need IT knowledge, at least basic IT knowledge, that mean students need to know that how to use computer, windows, office programs and internet beside this have to know how to browse, how to use email address as well as some application. When the students complete this basic training and pass the exam. Then the training team has to provide advance training for the second phase, which will improve the capacity building and quality of IT knowledge of the students [18, 10].

Advanced trainings for students: those students who successfully complete the basics trainings have the right to join or participate the advance trainings. which would covering data exchange, virus protection, accessing the network, accessing software and hardware, configuration, installation of software, when students complete the advanced training at the end students will be able to install and configure Operating System (OS) or other application software. The use of internet, sending and receiving data, fixing software and hardware problems, design and create power point slides and presentations, and can utilize spreadsheets as well as word processor [18, 21, 19].

Trainings for the University employees: the administrative staff and lecturers are the main operative of university they also need IT knowledge to acquire, because the lecturers need to know that how to use internet resources for preparing lecture to the students, and need to know how to prepare power point slides, beside this the lecturers need to know office programs especially word processor for the paper, journal and book writing. Administrative staff also needs to know office programs, especially word processor, spreadsheet and database beside this also need to know internet and emails system for the exchanging data among university administrations, which will solve the current problems of the university [5, 18, 3].

Trainings for the executives: executives of the university in the higher level of the administration, such as chancellor of the University and deans of the faculties need to know that how to use computer, internet and e-mails. Because currently at the university there is lack of IT knowledge and majority of deans of faculties have problems with the use of computer, the internet, and e-mails, which is really important for them, therefore there should be training for them to overcome the problems [2, 1, 18].

Trainings for the women: according to culture and environment most of the female students have a lot of problems and couldn't join male students classes even if join the male students class then couldn't ask a question when do not understand, therefore it is better to prepare special classes for the female students to well trained and improved [18, 22, 10].

Trainings for the Network administrators: it is important for the network control to have well trained and professional network administrators it must know that how to use Unix Operating system more commands, how to edit the

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configuration files, how to handle security problems, how to create local network, client-Server systems, subnet, and have to have familiarization with the configuration of DHCP, DNS, Firewall, proxy server and web server apache. As well as how to create user IDs, etc, therefore, the network administrators and other technical staff need more trainings [18, 19, 20] those who provide training classes must be professional and expert such as lecturers of IT education trainers and have to have assistant (tutor) for providing exercises for the students more details about IT lecturers and tutor as following:

Lecturers
As the task of IT Center to provide the basic services for the university, so one of them service is teaching IT Center staff, administration staff of University, lecturers of different faculty as well as students of the university. The lecturers for IT Center must be professional qualified and IT specialists. To increase the capacity level of the University staff as well as students. In IT knowledge [2, 3, 5, 10]. Other IT Centers of Afghanistan like (ITCK, ITCH, ITCB, ITCN, and ITCQ) has lecturers from the Computer Science faculties they teach students as well as train the staff in IT Center. The same procedure should be applied for Sayed Jamaluddin Afghani University IT Center as well. Fortunately the University of Sayed Jamaluddin Afghani has the faculty of Computer Science and faculty of Computer Science has well qualified formal lecturers who can strongly support and assist the IT Center in the area of teaching and training. the lecturers have to have organized lesson plan and program for the teaching and training and they have to see the situation what really needed for the administration staff and for students of the University for example if lecturers' of IT Center teaches the hardware class to the administration staff then that will be just waste of time. Because administration staff do not really need Hardware class. They need what they want and necessary for them. Like MS-office programs (word processing, spreadsheet, database). students and lecturers of other faculties need to teaches fundamental and basic of computer, as well as the Internet or worldwide web as Kakar, (2010) mentioned the lecturers will teach IT related and associated topics such as computer fundamentals for the students to help them achieve computer knowledge and the use of world wide web, with which they can improve their professional field of studies. That means the students and lecturers of other faculties have to know how to use Computer, World Wide Web or the Internet how to search and how to filter and get worthy trust data from the Internet and how to solve the problems over Internet.

Tutor
In the academic organizational structure, the tutor plays the important role especially In Information Technology, the tutor facilitates and assists the students in the area of Exercise and problems and shows to the students the way how to solve the problem and exercise. Though this concept is very rare in Afghanistan's Universities. But it is necessary to have tutors in Information Technology Center to help and improve the student's ability to problem-solving. The other IT Centers such as (ITCK, ITCH, TICB, ITCN, and ITCQ) has already implemented the tutorial system [18, 22, 19]. "tutoring in the IT Center will help the teachers to divide their burden and the students to learn more and faster by

selecting the young talents who are well acquainted with computers" [22]. The problem in Afghanistan most of the lecturers in universities do not give Exercise to the students lecturers directly teaches the subject and students are memorizing that just for the final exam, there is no analysis and understanding which is very weak methodology of lecture. In this case I have suggestion from the Ministry of Higher Education and specially Universities have to consider this weak point, and have to update and change this methodology to standard and international methodology. Which support tutor system, there should be the tutorial system that is possible as it mentioned in the Organizational structure that Sayed Jamaluddin Afghani University has Computer Science faculty and this faculty can assist the IT Center in the area of lecturers and tutors. The lecturers of Computer Science faculty have to select tutors among topper and talent students and train them for IT Center, it is better for the students they preparing and learning and assisting other students [18, 21, 22].

Guards
Security of Organization is a very crucial issue. without security the organization cannot be safe against any type of contaminants thread and harm, therefore it is strongly recommended due to the worse and dilemma situation of Afghanistan, it is necessary to have well-trained and active guards For the Information Technology Center. As in Information Technology Center, there is expensive and sensitive hardware like Computers, Scanners, printers, projectors and hard copy documents of staff etc, which should be protected from the theft, burglary and any kind of robbery. As Sayed Jamaluddin, Afghani University has two campuses. The campus where IT building is located is a bit far from the city and that area is insecure and there is more risk of theft and robbery. Therefore there must be 24-hour guards some of them will be responsible during the day and some of them will be responsible during the night by turns. There are guards for the whole University. But those are insufficient. My suggestion is there should be separate guards for the Information Technology Center, because the IT Center is the core and heart of University the entire university network and data is controlling from the IT Center, in this regard it should be secure and protected. The Guards for IT Center have to train well and they have to be clever and active because some of the theft are using very clever Idea for the robbery purpose like Social engineering so the guards have to be able to prevent such kind of acting and secure the Information Technology Center [15, 20, 13, 18].

Cleaners
Cleaning is the another requirement for IT Center as IT Center has electrical sensitive hardware which really needs to keep clean from the dust, heat and any kind of garbage but especially dust is very harmful to the hardware and can damage the hardware. For this purpose, there should be cleaners For the IT Center [18, 13, 15]. As the dedicated building for IT center in Sayed Jamaluddin Afghani University is located in the very dusty area, it is very close to the Main road of Asadabad city, daily there are more crowds of vehicles which cause too much dust. That emits on IT building. Therefore there should be cleaners for daily services. One main problem which I have found out in Sayed Jamaluddin Afghani University during Writing this paper was the lack of knowledge about cleaning, the cleaner

was just thinking that my job is to vacuum the floor and collect the waste papers, not doors, windows, curtains, computers etc, another problem which I found out. The cleaner during the wiping floor or carpet he or she was making too much dust and that dust evaporated and again emitted on computers and tablets which are the main reason of hardware damage in Sayed Jamaluddin Afghani University. My suggestion, in this case, is when hire cleaners there should be some basic training and awareness program about the harm of dust and make the cleaners understand the importance of IT Center and consequences of Hardware damage another suggestion there should be some policy, duties, and responsibilities about cleaners. For example the cleaners are required the following duties in Information Technology Center [2]:

- cleaning all the rooms of IT Center, stairs, ceilings, carpet, walls, curtains doors, windows, mirrors, furniture/desk, tables, Chairs, cupboards, shelves, Computers, printers, scanners, bins cables,
- Emptying waste bins or similar receptacles, transporting waste material to designated collection points.
- Sweeping floors with brushes or dust mops.
- Mopping floors with wet or damp mops.
- Suction cleaning carpeted areas and "spot" cleaning carpets.
- Using electronically powered pick up machines to dust, damp wipe, wash or polish furniture, ledges, window sills, external surfaces of cupboards, radiators, shelves, and fitments.
- Removing rubbish and recyclable material, and emptying containers, bins, and trays.
- Removing dust and dirt from ceilings, walls, overhead pipes, and fixtures.
- Furniture/desks-damp dust (all removable furniture e.g., trolleys must be pulled out and cleaned under).
- Clean inside and outside surrounds of sinks.
- Removing marks from doors, glass, windows, and walls.
- Clean telephone
- Vacuum carpet, polish mirrors.

Results and Discussion

The main focuses of this paper is Organizational Structure of Information Technology Center at Sayed Jamaluddin Afghani University as the Information Technology Center is very important and Core for any administration, therefore it is considerable that Organizational structure and IT professional staff is indispensible and one of the priorities for the Information Technology Center, thus after the Organizational Structure analysis of Information Technology Center at Sayed Jamaluddin Afghani University from the result it came that there were many problems in the University in case of Organizational structure of Information technology Center Such as :Lack of Organizational Structure, Lack of IT professional and expert Staff, lack of IT Education, lack of IT Trainings for the University staff and lack of public awareness and the right Use of Information Technology Center, etc… there was just one IT Manger who was not professional of IT and majority

of the University staff was complaining that they faces IT problems but there is no any Reference to solve and fix them problems, therefore in the paper I suggested the Organizational Structure and professional staff for the Information Technology Center like, IT Manager, system administrator, network administrator, database administrator, application administrator, Tester, Implementer, lecturers, technical staff, guards, and Cleaners, Beside these Suggested Organizational Structure all the rules, Responsibilities and duties of the above mentioned professional staff are elaborately explained in the paper, if the University top management Consider and implement these Organizational Structure and the related Information Technology Center then, it will be possible to successfully run and Operate the Information Technology Center, for the hiring expert and professional staff the University have to take help from the Faculty of Computer Science Lecturers to hire qualify professional staff, this is important to mentioned that the responsibility of Professional staff is not only to run or Operate successfully Information Technology Center, they also need to support and improve the capacity building of IT Knowledge for the all University employees and students because this is the 21 century without IT knowledge it is impossible to promote any administration especially for the University, because all the lecturers need to know the use of computer, Internet for the preparing lecture and research purpose likewise administrative staff and students need to know IT knowledge for the learning purpose, therefore the second more focus on this paper is IT trainings to the University staff, these trainings are divided by two Main Parts the first part trainings should be itself for the Information Technology Center professional and technical staff Improvement these type of trainings have to be conducted from the faculty of Computer Science lecturers, the second part trainings should be for the University staff like lecturers, students and administrative, theses type of Trainings have to handle and conduct for the Information technology Center staff, to Improve them Capacity Building of IT knowledge, in Overall the Basic, medium and advance Trainings have to be Conducted, Beside these Information Technology Center have to Utilize the Internationals Better IT Security Guidelines and make Security policies for the Information Technology Center as well as for the Use of any IT Devices to save Hardware and Important Data of University, Information Technology Center have to take help from the Faculty of Computer Science and Conduct Multiple IT Awareness and Security Awareness programs to the University staff, Because misuse of Information technology Devices and Software Could Create big problems, therefore the IT professional and expert staff is Important for the Information technology Center, that can Computerize and Improve teaching and Learning process of University.

Conclusion

This Paper developed the Organizational Structure Concept To successfully Run and Operate the Information Technology Center at Sayed Jamaluddin Afghani University, for this purpose the challenges and problems of Organizational Structure has been mentioned and possible solutions are suggested, like the organizational structure and professional and expert staff for the Information Technology Center who need to operate the Information Technology Center like Manager of IT Center, technical staff, (system

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2 Source: "C learner job", http://joboutlook.gov.au/occupation.aspx?code=8112, p-1, par-2, June 2016.

administrators, Network administrator, database administrator, application administrator, electricity as well as hardware support technical staff), IT education like lecturers and tutors, Guards and cleaners for the Information Technology Center explained with details. Beside these the rules and responsibilities of IT professional and expert staff for each position explained with details, in addition, for the University staff Improvement in the field of IT, Multiple IT Trainings like, Basic, Medium and advance are elaborately explained, to conclude the words, if the University of Sayed Jamaluddin Afghani apply and Implement the Suggested Organizational Structure of this paper for the Information Technology Center, then it is possible to overcome all the IT Current problems of Information Technology Center which is mentioned in the paper with details, Beside this can Improves and promote the University Information Technology Center as well as the capacity building of the staff in the field of Information Technology.

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