Athar Mahboob

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Education

- Ph. D. in Electrical Engineering, National University of Sciences and Technology, Karachi, 2001-Present (in progress, expected completion in 2004)
- Master of Science in Electrical Engineering, Florida State University, Tallahassee, Florida, 1995.
- Bachelor of Science in Electrical Engineering, Florida State University, Tallahassee, Florida, 1992.

Special Interests In Teaching & Research

- My teaching and research interests are in the areas of Computer and Network Security, Cryptography, Computer Networks and Internetworking, TCP/IP Protocol suite, Digital Systems Design, Computer Architectures and the Linux Operating System.
- My Ph. D. research is focused on "Efficient Hardware Implementations of Elliptic Curve Cryptography".

Curriculum Development Related Activities

- Member of the Higher Education Commission's (HEC) National Curriculum Revision Committee (NCRC) for Computer Science in Pakistan
- During Summer 2002 and Fall 2002 participated actively in revision of four-year Bachelor of Computer Science Program and BBA-MIS Program at Institute of Business Administration, Karachi to bring it in line with IEEE and ACM recommendations on curriculum for Computer Science programs
- During Summer 2001 and Fall 2001 led the departmental effort as the Head of the Department in successful revision of four-year Computer Engineering BS degree program at Sir Syed university of Engineering & Technology to bring it in line with industry requirements and international standards of IEEE and ACM
- Developed the curriculum for MS Program in Software Engineering specialization at Sir Syed University of Engineering & Technology
- Developed the curriculum for MS Program in Networking specialization at Sir Syed University of Engineering & Technology
- Have been member of Board of Advanced Studies and Research at SSUET (1999-2001)

- Have been member of Board of Studies for Computer Engineering at SSUET (1997-2001)
- Have been member of Board of Faculty of Engineering at SSUET (1997-2001)

Courses Taught in Last Eight Years

S. No.	*Course Name*	*Program/Level*	*Term/Institution*
1	Computer & Network Security	Bachelor of Computer Science, Undergraduate	Fall 2003, IBA
2	Operating Systems	Bachelor of Computer Science, Undergraduate	Fall 2003, IBA
3	Digital Computer Logic	Bachelor of Computer Science, Undergraduate	Spring 2003, IBA
4	Basic Electronics	Bachelor of Computer Science, Undergraduate	Spring 2003, IBA
5	Internetworking	MBA-MIS, Postgraduate	Fall 2002, IBA
6	Digital Computer Logic	Bachelor of Computer Science, Undergraduate	Fall 2002, IBA
7	Requirements Analysis & Modeling	Bachelor of Computer Science, Undergraduate	Spring 2002, IBA
8	Computer & Network Security	Bachelor of Computer Science, Undergraduate	Spring 2002, IBA
9	Design & Analysis of Computer Networks	MS Computer Systems Engineering, Postgraduate	Fall 2002, NEDUET
10	Network Security	MS Computer Systems Engineering, Postgraduate	Spring 2002, NEDUET
11	Network Management	MS Computer Engineering, Postgraduate	Fall 2001, SSUET
12	Networking Protocols	MS Computer Engineering, Postgraduate	Fall 2001, SSUET
13	Computer Security	BS Computer Engineering	Fall 2001, SSUET
14	Internetworking	MS Computer Engineering, Postgraduate	Spring 2001, SSUET
15	Network Security	MS Computer Engineering, Postgraduate	Spring 2001, SSUET
16	Computer & Network Security	BS Computer Science, Undergraduate	Spring 2001, AIT
17	Computer Security	BS Computer Engineering, Undergraduate	Fall 2000, SSUET

S. No.	*Course Name*	*Program/Level*	*Term/Institution*
18	Computer Communication Networks	BS Computer Engineering, Undergraduate	Spring 2000, SSUET
19	Computer Security	BS Computer Engineering, Undergraduate	Fall 1999, SSUET
20	Computer Communication Networks	BS Computer Engineering, Undergraduate	Spring 1999, SSUET
21	Simulation & Modeling	BS Computer Engineering, Undergraduate	Spring 1999, SSUET
22	Computer Security	BS Computer Engineering, Undergraduate	Fall 1998, SSUET
23	Computer Communication Networks	BS Computer Engineering, Undergraduate	Spring 1998, SSUET
24	Computer Security	BS Computer Engineering, Undergraduate	Fall 1997, SSUET
25	Computer Communication Networks	BS Computer Engineering, Undergraduate	Spring 1997, SSUET
26	Computer Aided Engineering Drawing	BS Computer Engineering, Undergraduate	Fall 1996, SSUET
27	Digital Communications	MS Computer Science	Fall 1996, NEDUET

List of Publications

1. Rizwe, S. Z., Mahboob, A., Ikram, N.: "Performance Analysis of the Security Architecture for a Financial Custodian Service", WISA 2002, The 3rd International Workshop on Information Security Applications, Jeju Island, Korea, August 28-30, 2002, proceeding to be published in Lecture Notes in Computer Science - LNCS, Springer Verlag, 2002

2. Mahboob, A. Ikram, N.: "Regulatory Issues with Certification Authorities". Presented at the International Conference on E-commerce and Development organized by Government of Pakistan and UNDP, September 18-19, 2002, Islamabad

Honors & Volunteer Professional Activities

1. Member of Pakistan Engineering Council Evaluation Teams for Computer Engineering degree programs
2. Member Curriculum Advisory Board for Engineering, PAF-KIET, Karachi
3. Promotion of Linux and Opensource software technologis in Pakistan. In this connection I was once the Coordinator of Linux Task Force of the Ministry of Science & Technology of the Government of Pakistan.

4. Resolution passed in the Academic Council of SSUET during Fall 2000 to acknowledge my contributions to the development of Computer Engineering Department at SSUET

Certifications

Certified and registered as an Engineer In Training (EIT) in the state of Florida.

Professional Affiliation

- Member Pakistan Engineering Council (PEC)

Work Experience

12/2001-12/2004	Faculty Member at the Institute of Business Administration in the MIS and Computer Science Department. My responsibilities include teaching courses in the Computer Science and MIS degree programmes (BCS, BBA-MIS, MBA-MIS) to undergraduate and graduate students. The courses I have taught at IBA include (1) Computer and Network Security (2) Requirements Analysis and Modeling (3) Internetworking (4) Digital Computer Logic. In addition to my teaching responsibilities, I was also heavily involved in the design and implementation of a Plan for Renovation and Infrastructure Upgrade at IBA which included installation of a LAN of more than 450 nodes, 11 Mbps radio link between two IBA campuses, purchase and installation of 12 servers and more than 200 PCs at IBA, and many other IT infrastructure improvements.
5/2000-12/2001	Associate Professor and Incharge of the Department in the Department of Computer Engineering at Sir Syed University of Engineering & Technology, Karachi. I managed a total staff of more than 100 including 40 full-time faculty members, 35 full-time laboratory staff members. I led the department to grow six-folds in every aspect during my five year tenure as the Head of the Department. Also see attached Resume of Activities at Sir Syed University of Engineering & Technology. I also taught MS courses of Computer Networks, Networking Protocols, Network Security, Internetworking and Network Management.
5/96-4/2000	Assistant Professor and Incharge of the Department in the Department of Computer Engineering at Sir Syed University of Engineering & Technology, Karachi. Have taught the following courses: Computer Aided Engineering Drawing, Computer Communications & Networks and Computer Security, Simulation and Modeling. Also see attached Resume of Activities at Sir Syed University of Engineering & Technology.

5/96-12/2001	Systems Manager at Sir Syed University of Engineering & Technology, Karachi. Responsible for the operation and expansion of computing infrastructure at Sir Syed University of Engineering & Technology. Under my leadership the computer network expanded from 160 nodes to more than 1000 nodes and the number of PCs from less than 100 to more than 700.
6/96-7/96	Networking Consultant at Khadim Ali Shah Bukhari and Company Private Limited. Consulted in upgrading local area network from 10Base2 to 10/100 Mbps UTP Ethernet. Also consulted in the establishment of the Internet Service Provider Worldtel MECA (Pvt.) Ltd.
5/95-4/96	General Manager at A to Zee Electronics in Tallahassee, Florida. Managed a staff of five employees in a diverse business that provides Electronic Repair, Maintenance, Automobile Audio and Automobile Security services. As a manager responsible for quadrupling of sales revenue in the last six month period at the business. Provided administrative and technical knowledge ranging from repairing of high-end electronic equipment to troubleshooting complex computer based sound and security systems in present day automobiles. Interaction with and satisfying the needs of a growing customer base was a major part of the job assignment. Also responsible for managing business finances for advertising, inventory, test equipment and ensuring compliance with state regulatory laws for sales, business and income taxes.
8/93-5/95	Engineering Research Assistant at FAMU/FSU College of Engineering. Along with two professors worked on a year long project with the Florida Department of Transportation (FDOT). The project objectives included (a) research to generate a practical applications handbook illustrating the protection of electronic circuits from overvoltages for various types of traffic management and communications systems and (b) development of a modular set of software tools for modeling electronic circuit lightning protection requirements, characterization of protective components, and assigning applications of protective devices. The project also culminated in my thesis on Modeling Metal Oxide Varistors (MOV) in PSpice circuit simulation software.

7/93-4/94	Protection System Design Engineer at the National High Magnetic Field Laboratory (NHMFL), the biggest such facility in the world. As a part of the Resistive Magnet Group I designed and built a computer based magnet monitoring and protection system for very high-energy resistive magnets. The protection system used digital data acquisition hardware, software and a microcomputer. The system met stringent speed and modifiability constraints. In addition the system had a high performance to cost ratio. The system provided fail-safe operation for conduction of research under high magnetic fields.
5/93-8/93	Graduate Teaching Assistant at FAMU/FSU College of Engineering. Responsible for grading homework, quizzes and exams. Conducted help sessions for two introductory electrical engineering courses. A one-semester project was undertaken as a part of a team of instructors and graduate teaching assistants in which Total Quality Management (TQM) was applied to the engineering class room. This project was one of the pioneer experiments of its kind in the field of Engineering Education.
9/92-6/93	Engineering Assistant at Sterling and Greene Inc., an Electrical and Mechanical Engineering firm. Working under a Professional Engineer responsibilities included generating engineering drawings of Electrical and Mechanical systems. In addition, also responsible for computer aided design of heating ventilation and air conditioning (HVAC) systems and performing electrical load calculations for small to mid-size buildings.
1/92-4/93	Engineering Teaching Assistant at FAMU/FSU College of Engineering. Responsible for grading homework and quizzes. The teaching assistant role demanded independence and responsibility. Often responsible for generating solutions to the homework assignments so as to lower the burden on the professor.
2/91-9/92	Engineering Drawing Technician at the City of Tallahassee Electric Department. Worked in the Transmission and Distribution Division's Relaying and Communications section. Primarily responsible for generating system and circuit diagrams for various protective circuits at the substation level. Work involved surveying 15 substations spread throughout the city. Working for almost two years became familiar with the day to day operations at T&D. Learned about protective relaying; substation operations; microwave, power line carrier (PLC) and optical fiber communication links; and SCADA system.

6/89-1/90	Student Assistant to Director Technical Services at the Robert Manning Strozier Library. Job responsibilities were magnetic processing of books, microfilming documents and making signs with the Scott sign-making machine.

Computer and Networking Experience

- Establishment of a network of more than 1000 nodes at Sir Syed University of Engineering & Technology with more than 600 computers using UTP and Optical Fiber Media with switched Ethernet, Fast Ethernet and Gigabit Ethernet links and routed internetwork. The network provided hundreds of services to a user base of more than 3500 users utilizing TCP/IP protocol family.
- Underwent a one-semester course on computer networks at the graduate level. The course involved in-depth study of the principles of data and computer communications using the classical text by Stallings. The topics covered in the course included data transmission and encoding, data link control, multiplexing, circuit switching, packet switching, LANs and MANs, protocols and architecture (OSI/ARPANET), and internetworking. In addition to two tests and several homework assignments, two research papers and a network simulation and design project were also undertaken. The project involved computer simulation of traffic on an existing network with heavy loads and excessive delays and proposing of a solution to overcome the problem. Computer simulation was done using Prophesy queuing simulation package.
- Installation and setup of several Linux (a UNIX like operating system) systems. Administering the systems, adding, removing and managing users. Configuring the systems to connect to Ethernet networks. Configuring X Windows. Compiling and installing UNIX software for Engineering applications and computer networking capabilities.
- Configuring workstations to use TCP/IP protocol suite under MS-Windows 3.X, Windows95, Windows NT and UNIX.
- Installing and maintaining Internet servers for File Transfer Protocol (FTP).
- Installing and maintaining servers for World Wide Web (WWW/HTTP).
- Setting up UUCP wide area networking.
- Setting up and maintaining campus-wide electronic mail facility for students, staff and faculty. Providing world-wide e-mail connectivity via UUCP.
- Setting up and maintaining Domain Names System (DNS) server.
- Replacing and configuring hardware components (memory, hard disks, floppy drives, CD ROMs, modems, I/O controllers, Ethernet controllers, monitors, and printers, scanners etc.). Replacing printer ink cartridges and toner cartridges on regular basis. Performing hard disk maintenance via scanning and defragmentation on regular basis. Optimizing memory configuration at the workstation level to improve system performance. Backing up and restoring systems on Tape.
- Configuring various systems at home and at work to use SLIP and PPP over the telephone line. Setting up Internet clients such as Mosaic, Netscape, and various flavors of Telnet and FTP for use with Microsoft Windows. Installing and upgrading software packages on regular basis.

- Creating Windows Help based hypertext documents with text, graphs, pictures, tables, equations and all the other windows help hypertext features (jump and popup hotspot links) to aid in transmission of knowledge and easier understanding of facts by the users via this multimedia tool.
- Past maintainer of the Frequently Asked Questions (FAQ) document for the USENET news group comp.os.ms-windows.winhelp, a news group used by windows help programmers from all over the world to share ideas and ask questions.
- Enormous software expertise that is listed below separately.

Computer Software Expertise

- I have enormous software expertise in Opensource technologies. The list given below is a bit dated. Please see attached Resume of Activities at Sir Syed University of Engineering & Technology (1996-2001) for further information about my software expertise.
- Programmed extensively in **FORTRAN.** Also familiar with **C, BASIC,** and **Assembler** programming languages.
- Two years of professional work experience with **AutoCad**. Thorough knowledge of AutoCad with experience in using **AutoLISP** in AutoCad for customization and increased efficiency.
- Professional work experience with **LabVIEW** Instrumentation software package from National Instruments Inc.
- Utilized **PSpice** for Electric and Electronic circuit design heavily during the research and educational career.
- **TUTSIM** control system simulation and design software used as an educational tool.
- **Mathcad, MATLAB** and a host of other Engineering Design Software packages used extensively for Digital Signal Processing system design and simulation.
- Completely proficient in working with **DOS, VAX VMS, UNIX, MacOS** and **Windows** Operating Systems.
- Used **CHVAC Design, Ductlink,** etc., for Mechanical Engineering Design.
- **Excel, Word and Powerpoint** used extensively throughout educational and employment assignments.

References

1. Prof. Dr. Syed Enamul Haque, Dean Faculty of Engineering, Sir Syed University of Engineering & Technology.
2. Prof. Dr. Muhammad Salahuddin Ahmed, former Dean Faculty of Basic and Applied Sciences, Sir Syed University of Engineering & Technology.

List of Electrical Engineering and General Engineering Courses Taken

This list provides an estimate of the thoroughness of my Electrical Engineering education. The list does not contain the social studies and humanities courses taken that are also part of the university curriculum.

Graduate Courses:

1. Fundamentals of Cryptography
2. Applied Cryptography
3. Elliptic Curve Cryptography
4. Computer Networks
5. Optical Communication Systems
6. Digital Communication Systems
7. Radio Frequency Electronic Design
8. Digital Signal Processing
9. Wavelets
10. Random Processes
11. Statistical Signal Processing
12. Protective Device Modeling
13. Numerical Techniques in Electromagnetics
14. Survey of High Field Magnet Technology

Undergraduate Courses:

1. Communication Systems
2. Opto-electronics
3. Digital Control Systems
4. Instrumentation
5. Power System Design and Analysis
6. Control Systems
7. Electrical Engineering Design Project
8. Electromechanical Dynamics
9. Microprocessor Based System Design
10. Microprocessor Based System Design Lab.
11. Digital Logic Design
12. Digital Logic Design Lab.
13. Signals and Systems
14. Complex Variables
15. Electromagnetic Fields II
16. Electromagnetics Lab.
17. Electromagnetic Fields I
18. Advance Electronic Circuit Design
19. Advance Electronics Lab.
20. Electronic Circuit Design
21. Electronics Lab.
22. Advance Electric Circuit Analysis
23. Advance Electric Circuits Lab.
24. Electric Circuit Analysis
25. FORTRAN Programming for Engineers
26. Engineering Thermodynamics
27. Engineering Mechanics
28. Engineering Economics
29. Engineering Graphics
30. Engineering Mathematics II
31. Engineering Mathematics I
32. Calculus with Analytic Geometry III
33. Calculus with Analytic Geometry II
34. Calculus with Analytic Geometry I
35. Physics for Science majors II w/Lab
36. Physics for Science majors I w/Lab
37. Chemistry for Science majors II w/Lab
38. Chemistry for Science majors I w/Lab

Athar Mahboob

Resume of Activities at Sir Syed University of Engineering & Technology

1996-2001

In a letter dated October 31, 1995 I had written to Dr. Syed Enamul Haque, Dean Faculty of Engineering:

> I have decided to join the teaching profession now because this has been my dream ever since I was a child. … I have worked in various professional assignments ranging from Protection System Design Engineer at National High Magnetic Field Laboratory to Research Assistant for a two year long project funded by the Florida Department of Transportation. I have excellent knowledge of basic and advanced Electrical Engineering subjects as well as proficiency in working with computer networks using TCP/IP. … Another area of my interest is Scientific Computing and application of Computers in Engineering education. I am interested in using computer as a tool at every stage of education and work. I believe that I will be an asset to your Institution, provided I am given a chance to teach there.

Later, on December 25, 1995, I wrote to Dr. A. T. Khan, the then Vice Chancellor:

> I have applied for Assistant Professor teaching position at SSUET. My interview is scheduled around December 28, 1995. Despite having a great desire to return to Pakistan at the earliest, and in time for the interview, I find it impossible to do so before April 1996. I have been living in the United States for the last eight years and it will take a few more months for me to take care of personal matters in the United States before I can return to Pakistan. … I hope, on my return to Pakistan I can be given a chance to appear for an interview with the selection committee. It is my earnest desire to be given an opportunity to teach at your excellent institution.

I managed to return to Pakistan on April 30, 1996 after living, studying and working in the United States for eight years (1988-1996). On May 7, 1996 I visited the University in connection with my earlier application for the post of Assistant Professor and met the Dean, the Vice Chancellor and the Chancellor. I formally joined as Assistant Professor on May 15, 1996. Since then I have not wasted a minute of my time at Sir Syed University and have devoted all my energies to the achievement following major objectives:

1. Establishment of a very strong undergraduate BS degree program in Computer Engineering which is market-driven and whose graduates are ready to face the challenges of a highly competitive market place.
2. Curriculum development for the Computer Engineering BS degree program to reflect the needs of the times.
3. Development of a credible computing infrastructure in support of the degree program.

4. To assess the computing needs (hardware, software and networks) of the University and to make plans and implement to achieve the same.
5. Do all efforts to increase the reputation and good name of the University.

Let me make it fully clear that I have only been able to do what I have done due to the full support and encouragement of the University Management. My only contribution has been the desire on my part to do it. Without the support of the University I would not have able to do anything. I also believe that there is still a lot more that I can do for the University. I will always keep working to bring recognition and success to the University.

To achieve the above objectives I have undertaken the following major tasks. This list is almost in chronological order. It may also be mentioned that most of these tasks are of an ongoing nature and continue to this day from the time that I have done them.

1. **Deployment of Linux Operating System at SSUET (May 1996 - December 2001)** - Sir Syed University thus became one of the first educational institutions in the country to adopt this cutting edge technology. I installed Linux for Email services, Web Services, Internet Proxy Services, User Home Directories and many other networking services.

2. **Deployment of TCP/IP and Related Services at SSUET (May 1996 - December 2001)** - Sir Syed University thus became one of the first educational institutions in the country to adopt this cutting edge technology. I deployed TCP/IP for all computing and networking devices including workstations, servers, print servers, printers, routers, hubs, switches and on many operating systems including Windows 95/98, Windows NT 3.51/4.0/2000, Linux, HP UNIX and others.

3. **Deployment of Windows NT Operating System at SSUET (May 1996 - December 2001)** - Sir Syed University thus became one of the first educational institutions in the country to adopt this cutting edge technology. I deployed Windows NT operating systems on the desktop as well as on the servers. I provided capabilities for Roaming Profiles for user, integrated the Windows NT Domain security database with Linux. In addition, all users had accounts on the domain which were created using automatic means through software developed under my supervision. I deployed Print Quota Management for users, Disk quota management where each user had 100 MB storage space on the Home Directory servers. There were more than 3000 users of the computing facilities at any given time.

4. **Design and Implementation of Computer Lab 3 (December 1996 - February 1997)** – This was a computing facility consisting of 30 Computers and a switched Ethernet network along with printing resources. I planned, designed, made the specification and tender documents, led the implementation of this state of the art facility with dual processor capable PentiumPro processor-based Dell workstations. The entire network of the Lab was Switched Ethernet which at that time was a novelty. In addition, all the software running on the computers was licensed.

5. **SSUET Campus Network Expansion (March 1997)** - from 165 Nodes to 220 Nodes. I designed and implemented that SSUET Campus Network Expansion. Through this project the SSUET Campus Network connected all the administrative offices and the academic departments into one Campus-Wide network.

6. **Implementation of Internet Connectivity and Services for SSUET (November 1996 - December 2001)** - The Internet connectivity was economical, secure and pervasive. Initially, due to economic constraint, the connectivity was based on 28.8 kbps Dedicated Dialup. Later, it was upgraded to 33.6 kbps and subsequently to dual 56 kbps dial-up. Later on, I managed to upgrade the Internet connectivity of the University to 256 kbps high-speed symmetric link over Digital Cross-Connect (DXX) based leased line from PTCL with the dual 56 kbps links serving as Backup.

7. **Registration and Management of SSUET Internet Domain ssuet.edu.pk (December 1996 - December 2001)** I registered the SSUET Internet Domain ssuet.edu.pk and managed it for more than five years. This included the management of the DNS servers, the Email servers and the Web Servers for the domain ssuet.edu.pk.

8. **Establishment of Short Courses (March 1997 - December 2001)** - in computer technology such as Internet, Y2K, MCSE, MCSE+Internet, Computer Animation, CCNA, Linux, etc. I personally conducted several short courses and then managed to establish a Continuing Education Programme with the enrollment of more than 1500 concurrent students in various Short Courses.

9. **SindhNet Project Plan for Governor Sindh (March 1998)** - This was a project intended to create a computer network among all the universities in the province and create a local Internet backbone. On the request of the then Governor of Sindh, I made a complete project plan (including costing) for connecting all the universities of the province of Sindh with each other using the available communication infrastructure. The plan would have established a TCP/IP internetwork of the university and provided email and web access to provincial academic resources.

10. **Paper Presented in Fourth National Computer Conference (May 1998)** - on Role of Computers and Information Technology in Development, Information Technology Policies for the Future: Recommendations from Sir Syed University of Engineering & Technology co-author Prof. Dr. Syed Enamul Haque, Dean Faculty of Engineering. I described the computing infrastructure development activities which we had undertaken at SSUET and made recommendations for other academic institutions in the country. Through this sharing of experience, many other academic institutions were motivated to undertake computing infrastructure development projects in the country.

11. **Establishment of In-house Computer Maintenance and Repair Facilities at SSUET (December 1997 - December 2001)**. This facility was established in December 1997 and as a result all the computers and related equipment achieved a rate of availability of 99%. I personally supervised the workings of the excellent maintenance and repair engineer to ensure the 99% equipment availability. I fought the case with the top-management all the time and succeeded in allocation of funds for procurement of necessary repair and maintenance parts and I also always ensured that the most economical method to repair the equipment was undertaken. Through my commitment to the utilization and availability of equipment, computing equipment more than eight years old was still fully functional and providing services to the users at the SSUET Campus Network alongside the most recent state of the art equipment. This demonstrated my commitment to basic engineering principles of economy, availability and operational readiness.

12. **Design and Implementation of Computer Lab 4 (December 1998 - March 1999)** – This was a computing facility consisting of 60 Computers and a switched Ethernet network along with printing, scanning, CD-Recording UPS resources. The special aspect of this Lab was that I prepared the entire feasibility and design report and defended it successfully at the meeting of INFAQ Foundation Executive Board, whereby I managed to obtain a donation of more than Rs. 10.0 Million for the establishment of this Computer Lab.

13. **SSUET Campus Network Expansion from 220 Nodes to 500 Nodes (April 1999).** This included the expansion of the Campus Network into Blocks A, C and D of the University and the Internetworking the building networks with the main campus network in the computer labs. With this project the SSUET Campus Network truly became a campus network.

14. **Oxford Center for Islamic Studies Information Technology Infrastructure Upgrade Design Report and Project Implementation (July 1998 - September 1998 and January 1999 - March 1999).** A team of three persons from Sir Syed University of Engineering & Technology led by Mr. Athar Mahboob, implemented an Information Technology project worth £60,000 at the Oxford Center for Islamic Studies. The Oxford Center for Islamic Studies is an associated institution of the University of Oxford that was established to encourage a more informed understanding of Islam - its culture and civilization. In this project, I personally developed the entire feasibility report and implementation plan and defended it successfully in front of the Board of Trustees of the OXCIS to get the approval for the project. Then six moths later, I led a team of three engineers to undertake and complete the project. The project had all the three components of an IT project, that is, Hardware, Networking and Software. I supervised and participated fully in all the three aspects of the project.

15. **Deployment of Network Services for Users (April 1999 - July 1999)** – such as Microsoft Exchange, Data Backup, Internet Newsgroups Access. I managed the purchase of the required software and then ensured its deployment and use by the user base of more than 2500.

16. **Proposal for HP UNIX Workstations from Madani Welfare Fund USA (March 1999 - December 2001).** As a result of this proposal and follow up reports the

University Computer Engineering Department received a donation of 12 Hewlett Packard 9000 RISC Engineering Workstations along with accompanying peripherals and spare parts from Madani Welfare Trust. Madani Welfare Trust is a USA-based group of Pakistani Scientists and Engineers. It may be mentioned that Sir Syed University Computer Department was the first in whole of Pakistan to receive such equipment. Later on, this relationship was matured further through my efforts and a donation 110 more advanced HP UNIX/RISC Workstations was received and the UNIX Workstations Laboratory was established.

17. **Software Technology Incubator (STI) Implementation (July 1998 - December 2000).** The STI was a novel initiative of the University to promote software exports from Pakistan is the establishment of the Software Technology Incubator (STI). The STI under my leadership worked on software development projects for Fortune 50 US Company - Lockheed Martin LM-IBS. The STI project feasibility was prepared by Mr. Abdul Aziz Khan, Honorary Coordinator SSUET North America. The implementation of STI was done in close contact with Mr. Abdul Aziz Khan. I personally headed the STI till the end of 2000 and STI under my leadership completed various large scale national and international software projects. I made the STI a member of the Pakistan Software Export Board, The Pakistan Software Houses Association and also made it a Microsoft Certified Solution Provider. I also led STI teams to projects in the United Arab Emirates. More information about the STI is available at http://www.stipk.com.

18. **Feasibility Report for Expansion at FMAITCG Educational Programs and Computing Facilities (March 2000).** As a result a substantial donation of more than Rs. 4.0 Million was received from INFAQ Foundation to improve the facilities at FMAITCG.

19. **Development of the Postgraduate Programme in the Computer Engineering Department (September 1999 - December 2001)**. This also included the entire postgraduate prospectus as well as the feasibility report for the postgraduate degree programmes at SSUET. The Masters degree program in the Computer Engineering Department with specialization in Computer Networking was launched on April 13, 2000. There were 38 students in the first batch of the MS programme. I also managed to arrange for the precious faculty to teach in the MS programme. This MS programme was truly an MS programme of international standards in which admission was granted on the basis of a four years Bachelors degree only. After the first batch I also arranged for the induction of a second batch of similar size in Computer Networking specialization programme.

20. **Computer Laboratory Manuals Development (September 1999 - December 2001)** for Computer Laboratory Classes for various courses in the Computer Engineering BS degree curriculum. Laboratory Manuals were developed for 23 courses. These laboratory manuals document the work that takes place in the lab and ensure that all students perform the hands-on exercises that are so essential for the Computer Engineering/Computer Science degree.

21. **Design and Implementation Computer Lab 5 (June 1999)** a computing facility with 60 general-purpose computer workstations. I planned, designed, developed specifications, tender documents and led the purchase and implementation of this

facility. Along with this Computer Lab we also purchased six quad-processor Xeon Servers. The total value of purchases made in this project was in excess of Rs. 30 Million.

22. **SSUET Campus Network Expansion (July 1999)** from 500 Nodes to 700 Nodes including installation of Optical Fiber Links between Blocks A, B and D.

23. **Computer Networks Laboratory Establishment with the Help of Cisco Systems, USA (September 1999).** The winning of the partnership of Cisco Systems was a major achievement on behalf of the University and added greatly to University's national and international prestige and reputation. The Networks Laboratory was the first facility of its kind in the country. Even in the United States less than ten universities would have had a networks laboratory.

24. **Systems Applications Laboratory Establishment (October 1999)** for laboratory work related to the subjects of (1) Microprocessor Based System Design (2) Robotics. I also managed to arrange the purchase of instruments and import of Robotic Kits for teaching purposes.

25. **Feasibility Presentation of the Internet Service Provider Project.** This was a large-scale commercial project of great value to the University both academically as well as for the Software Technology Incubator Project.

26. **Establishment of Madani UNIX Workstations Laboratory (March 2000)** This is a unique facility in the country with 60 RISC workstations available to students along with CAD Tools for VLSI design. I led the planning, the design and implementation of the project. After its implementation, I ensured heavy utilization of this state of the art facility.

27. **SSUET Campus Network Expansion from 700 Nodes to 1000 Nodes (March 2000)** - The number of optical fiber links on the campus was increased to five and the number of gigabit links to three.

28. **256 kbps Internet Link Commissioning (December 2000)** - This was a very difficult project wherein I got approval for installation of more than 1 million rupees of equipment at SSUET premises and PTCL telephone exchange to make possible a high-speed full-duplex link to the Internet for the SSUET Campus Network capable of operating at up to 2 Mbps.

29. **Acquisition of Synopsys VLSI Design Tools with 50 concurrent licenses (January 2001)** - I managed to arrange the availability and teaching of state of the art VLSI CAD Tools for a large number of Pakistani students. This I managed to do after substantial correspondence with ex-patriate Pakistani community. This was the first time that such tools became available to undergraduate students in Pakistan.

30. **Installation and Commissioning of Gigabit Campus Backbone (July 2001)** - This project resulted in connectivity of all the major SSUET Campus Network segments at gigabit speed using gigabit Ethernet technology and Cisco switches.

31. **Design of MS Programme in Computer Engineering with Specialization in Software Engineering (January 2001 - December 2001)** - I designed and implemented an MS programme with special focus to the software industry of

Pakistan. This MS programme was truly an MS programme of international standards in which admission was granted on the basis of a four years Bachelors degree only.

32. **Development of Computer Engineering Department Website** at http://www.ssuet.edu.pk/ced. I wrote all the text and developed the HTML for the departmental website which provided complete information about the programmes offered by the department, the faculty of the department and the resources of the department.

33. **Teaching of Following Graduate Courses (MS) (July 2000 - December 2001):** Computer Networks, Networking Protocols, Network Security, Internetworking, Network Management. I taught these advance graduate course to a class of more then 30 students.

34. **Teaching of Following Undergraduate Courses (some for five years in a row) (July 1996 - December 2001):** Computer Communication Networks, Computer Security, Simulation and Modeling, Computer Aided Engineering Drawing. I developed extensive lecture notes, lab assignments and homework assignments for all the subjects.

35. **Serving the Computer Engineering Department as the Incharge for five years (December 1996 -December 2001).** I managed the academic and administrative affairs of the Department. Under my leadership the department grew six-fold in all respects - number of students, number of faculty members, number of labs and facilities, number of computers. In addition, I ensured quality through round the clock monitoring of activities, mentoring of my colleagues and subordinates and the students. At one time, I was supervising a staff of more than 100 persons (40 faculty members, 35 laboratory support staff, 10 non-teaching staff and 15 software engineers).

36. **Serving as Systems Manager for 5-1/2 years (May 1996 - December 2001).** I built and managed the computing infrastructure at SSUET. The total financial (capital and recurring) value of the projects initiated by me, planned by me, executed by me and completed successfully under my supervision was in excess of Rs. 100 Million.

37. **Organizing regular seminars and workshops on technical topics related to Computer Engineering (May 1996 - December 2001)** As a result of my efforts more than 50 seminars and lectures were organized in which speakers included professors from foreign universities, ex-patriate Pakistanis in high positions in technology companies abroad and local professionals of stature.

38. **Development of Course Websites for following six courses**: (1) Computer Communication Networks (2) Computer Security (3) Computer Networks (4) Networking Protocols (5) Network Security (6) Internetworking

39. **Arrange for the Development of Computer Engineering Department Alumni Database** - Due to my strong belief in keeping links with my ex-students, I managed to keep an up-to-date database of SSUET Computer Engineering Alumni. Not only that I maintained strong links with SSUET Alumni for improving the Computer Engineering programme based on their feedback and input.

40. **Establishment of a System of Mailing Lists for Departmental and Group Communication** - Using Majordomo Mailing List Manager and Webmin management interface for it, I maintained in excess of ten mailing lists for various functions of the department. These resulted in quick communication within the department and a feeling of community among the department members. The mailing lists included lists for faculty members, computer lab staff, network management teams and other working groups.

41. **Ensuring SSUET Participation in National Software Competitions (May 1996 - December 2001)** resulting in major wins for SSUET Computer Engineering Students in SOFTEC (First Prizes in 1996, 1997, 1998, 2000), A. Q. Khan Software Competition (First Prizes in 1998, 2000), IIU Computer Science Contest (First Prizes in 1999, 2001) and many other national contests.

42. **Complete Update of BS Computer Engineering Curriculum (July 2001)** - I updated the curriculum of the four-year BS degree programme with the participation of the faculty members of the department to make the programme responsive to the industry needs and advancement of technology.