SHAHEED ZULFIKAR ALI BHUTTO
INSTITUTE OF SCIENCE AND TECHNOLOGY

SZABIST

SELF-ASSESSMENT REPORT

PhD - Computing (48 Credit Hours)

Karachi Campus

Spring 2016

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INSTITUTE OF SCIENCE AND TECHNOLOGY

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SHAHEED ZULFIKAR ALI BHUTTO
INSTITUTE OF SCIENCE AND TECHNOLOGY

Quality Enhancement Cell
Institutional Research Department

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Introductions

SZABIST - Quality Enhancement Cell (QEC) since its inception has been active in promoting its core function of bringing standardization to ***SZABIST***'s academic programs in line with the guidelines enunciated by the Higher Education Commission. In this regard, till Spring 2016, majority (58 of 62) programs offered at ***SZABIST*** were selected for Self-Assessment process.

QEC conducted a number of workshops to create awareness of the Self-Assessment process and its significance in further improving the quality of education at ***SZABIST***. In Karachi Campus, after completing the Self-Assessment Reports of two programs in the Computer Science Department, nine programs in the Management Sciences Department, three programs in the Social Sciences Department, one program in Mechatronics Department, one program in Media Sciences Department and three programs in Biosciences Department the QEC initiated the Self-Assessment process of PhD-Computing program. The highlights of the process were as follows:

1. Nomination of Program Team (PT)

The PT was nominated by the Head of Computer Sciences Department, Dr. Imran Amin on March 25th, 2016. Following were the members of the PT:

(i) Dr. Syed Saif-ur-Rehman
(ii) Mr. Zohaib Jan
(iii) Ms. Zareen Sharf

2. Submission of PT Report

The PT submitted the report on April 6th, 2016. The QEC examined the report, identified shortcomings and communicated the same to the PT. After incorporating QEC suggestions, the report was finalized on May 18th, 2016.

3. Nomination of Assessment Team (AT)

The AT was nominated by the Head of IR/QEC, Dr. Muhammad Altaf Mukati and Ms. Faryal Shahabuddin on May 30th, 2016. Following were the members of the AT:

(i) Dr. Faraz Junejo
(ii) Dr. Imran Amin
(iii) Ms. Hareem Siddiqui

4. Date of Submission of AT Report

The AT Report was submitted on June 22nd, 2016.

5. AT Findings and Recommendations

Following are some of the recommendations made by the AT to overcome the major shortcomings in the program:

(i) The number of available digital library resources is found to be low. It is recommended that more relevant and necessary digital resources should be added to increase the library database.
(ii) There is a lack of faculty development plan. It is suggested that a detailed faculty development plan should be prepared and implemented.
(iii) The assessment of the program revealed a weak research culture. It is suggested that research culture should be improved by amending course completion requirement accordingly.

6. Preparation of Assessment Results Implementation Plan Summary

The AT prepared the Assessment Results Implementation Plan Summary by highlighting the weaknesses of the program and suggesting remedial measures. The Computer Science Department plans to implement the suggested corrective measures in the near future to improve the quality of education delivered at ***SZABIST***.

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SELF-ASSESSMENT REPORT

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Program Team Report

Spring 2016

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Standard 1-3	***Assessment Results and Improvement Plans***
Standard 1- 4	***Overall Performance Using Quantifiable Measures***

Criterion 1: Program Mission, Objectives and Outcomes

Standard 1-1: Program Measurable Objectives

a. Document institution, department, and program mission statements

Mission Statement of Shaheed Zulfikar Ali Bhutto Institute of Science and Technology

The Shaheed Zulfikar Ali Bhutto Institute of Science and Technology has been established with the objectives of producing highly qualified, scientific and technical personnel to meet the country's requirements; of conducting state-of-the-art scientific and technological research and development in support of the private and public sector; of providing hi-tech scientific and technological assistance to the Pakistan industry to enable it to compete with the world industries in global trading; of providing highly trained scientific and technological personnel to be able to attract the growth of high-tech industries and foreign and Pakistani investment; and of providing a sound socio-economic and scientific base and infrastructure to Pakistan to be able to meet the economic and technological challenges of the 21st century.

Mission Statement of Computing Department

The department of Computer Science nurtures its students for pursuing professional and research career in computing and associate fields by allowing them to master the relevant knowledge and skills through comprehensive academic programs.

Mission Statement of PhD Computing Program

The mission of the Computer Science, doctoral program at SZABIST is to provide students with the knowledge, skills, and intellectual habits required for successful careers in research, teaching, and professional service. The program places primary emphasis on the development of research competence and also emphasizes teaching as a vehicle to academic professionalism, resulting in strengthening of the nexus between Teaching and Research. The doctoral program is integral to the Department mission of furthering its status as a premier CS department.

b. Program Objectives

The SZABIST PhD Computing, a 48-credit hour program has following objectives:

1. Provide a strong foundation to students with course work in advance topics of computer science and cross disciplinary areas, in order to meet challenges of quality research.
2. To produce well groomed computer scientists who are capable of fulfilling the need for computer applications, research, and academia.
3. Training of independent research to enable students to develop real skills in research and to motivate them to bring originality in their research thought process.
4. Guide students to conduct themselves as responsible, ethical researcher and responsible citizens, who are aware of ethical issues and societal needs and can perform service to

society and the computer science profession through participation in research organizations, professional societies, government, civic organizations, and humanitarian endeavors.

c. Program Outcomes (PhD Computing)

To attain the educational objectives of the PhD Computing program, the department intends to produce the following measurable outcomes at the time of graduation. Graduates of the PhD Computing program will have:

1. The ability to utilize the knowledge acquired to be used in solving computing problems.
2. The ability to think critically, perform scientific analysis and develop solutions for typical computing problems.
3. In depth knowledge in advanced and evolving areas in computing and in research.
4. The ability to acquire knowledge and skills independently.
5. The ability to communicate effectively using technical research writing and presentations.
6. Have an understanding of professional, ethical and social responsibilities and to work within teams and in multi-disciplinary environments.
7. Recognize the need for, and an ability to engage in, continuing research work

d. Describe how each Objective is Aligned with the Program, and Institution Mission Statements

Objectives	Alignment with program, and institution mission statement
Have a well-rounded education and a solid basis of knowledge in advanced technical and research courses	To provide quality advanced technology education to the students
Have a sound understanding of the Computer Science research work and equip students to pursue post-doctoral research programs.	Research skills of the discipline through class room teaching, laboratory sessions, research workshops, seminars and projects

Have a varied and balanced educational experience with an appropriate mix of theoretical knowledge and practical skills that will enable them to enter into and advance in the profession of computer science by adapting to emerging technologies and the ever changing needs of industry or the cutting edge computer science research.	Focusing on producing leading technology graduates who are able to innovate and perform a significant role in the continuing transformation of the local and global Society. Providing hi-tech scientific and technological assistance to the Pakistan industry
Conduct themselves as responsible, ethical, professionals and responsible citizens, who are aware of ethical issues and societal needs and can perform service to society and the computer science profession through participation in professional societies, government, civic organizations, and humanitarian endeavors	Perform a significant role in the continuing transformation of the local and global society. Providing a sound socio-economic and scientific base and infrastructure to Pakistan

Table: 1.1 Alignment with program, and institution mission statement

e. Elements of Strategic Plan

Main elements of the strategic plan to achieve program mission and objectives

Our academic strategic plan is based on our mission to be a student-centered department that prepares broadly educated, technologically proficient and highly productive citizens.

1. **An Integrated Academic Experience:** An integrated academic environment fosters connections among disciplines, between faculty and students, and with campus and community. Such an integrated experience is rich in opportunities for exploration, discovery and learning. It provides diverse perspectives, and it prepares students to be thoughtful competent citizens able to contribute to the common good. We achieve this goal through ongoing collaborative efforts that involve administration, faculty, students and staff.
2. **Diverse curriculum:** Keeping in mind that a well-designed academic curriculum needs not only to be comprehensive and effective but also flexible. Therefore, as new technology emerges and demands of the field evolve, the curriculum is revised without losing its commitment to quality. For this purpose, a wide range of electives subjects

are offered to ensure that the curriculum is responsive to the ever changing needs of computer science field.

3. **Research and Development:** Student research, especially which is connected to real world concerns, not only enhances critical thinking and analytical skills for students, it also enriches research scholarship and benefits the country. Computing Department engage students as researchers by integrating research opportunities into the curriculum (particularly through Independent Studies and Thesis), by providing training for students in research methodology and responsible research conduct, and by involving graduate students in multi-disciplinary research carried out at SZABIST, such as Renewable Energy, Stem Cell, Remote Distance Learning etc. to name a few. SZABIST also aids student research by providing student travel grants to present their work at conferences and creating a campus-based student research journal.
4. **Professional Career building:** Executive Development Center (EDC) facilitates arranging Internships for all students and acts as a liaison between the industry and the students. Every semester, renowned national and multinational companies contact the EDC to conduct their employment tests, interviews and other on-campus recruitment activities to directly induct SZABIST graduates into their organizations. Additionally, at least once a year, a 'Job Fair' is held at the college campus where many leading companies are invited to explain their recruitment procedures and the scenario about present and future vacancies. A graduate directory is published, once a year. It is a compendium which gives CVs of all students who have graduated during the year and it is distributed free of charge to all leading companies, where it serves as a useful reference book to find appropriate candidates for present and future vacancies.
5. **Co-curricular leaning:** In order to promote learning that is active, self-motivated, exploratory and attentive, a wide range of learning opportunities, both curricular and co-curricular are used. It includes student research, recreational and athletic programs, and co-curricular opportunities, such as, academic societies and student councils. Furthermore, an annual dinner is held with its leading alumni and adjunct faculty, particularly those who are gold medalists or are working in top multinational organizations, to network with the corporate world for innovative curriculum development, internships, placements, sponsorships and joint activities.

f. Program Objective Assessment

Objective	How Measured	When Measured	Improvement /Issues	Improvements Made
Have a well-rounded education and a solid basis of knowledge in advanced technical and research courses	Course Outline, midterm examination, final examination, assignments and reports	Every Semester	Curriculum needs updating	Board of studies reviews courses to bring in new changes.
Have a sound understanding of the Computer Science research work and equip students to pursue post-doctoral research programs.	Independent studies, research projects, research progress reports, thesis	Every Semester	Students not publishing their research outcomes on regular basis	Encourage students to publish their research outcomes
Have a varied and balanced educational experience with an appropriate mix of theoretical knowledge and practical skills that will enable them to enter into and advance in the profession of computer science by adapting to emerging technologies and the ever changing needs of industry or the cutting edge computer science research.	Course exams, Practical Reports, Projects, Assignments,	Every Semester	Need to bring in guest speakers from industry	Guest speakers are invited to a class session
Conduct themselves as responsible, ethical professionals and responsible citizens, who are aware of ethical issues and societal needs and can perform service to society and the computer science profession through participation in professional societies, government, civic organizations, and humanitarian endeavors.	Group assignments, final reports and presentation, surveys, liaisons with different organizations	Every Semester	No course related to this	EDC, time management, motivational speakers seminars

Table: 1.2 Program Objectives Assessment [1]

[1] Table 1.2 of PT Report is the Table 4.1 (Program Objectives Assessment) of AT Report

Standard 1-2 Program Outcomes

a. Program Outcomes and Objectives Matrix (PhD Computing)

In order to assure that graduates of the PhD Computing program have achieved the program's outcomes, a summary matrix depicting the mapping of Program's learning outcomes to its objectives is shown in the following table.

PROGRAM OBJECTIVES	PROGRAM OUTCOMES						
	1	2	3	4	5	6	7
1	X	X	X				
2	X	X	X	X	X	X	
3	X	X	X	X	X	X	X
4						X	

Table 1.3: Outcomes versus Objectives [2]

b. Employer Survey[3]

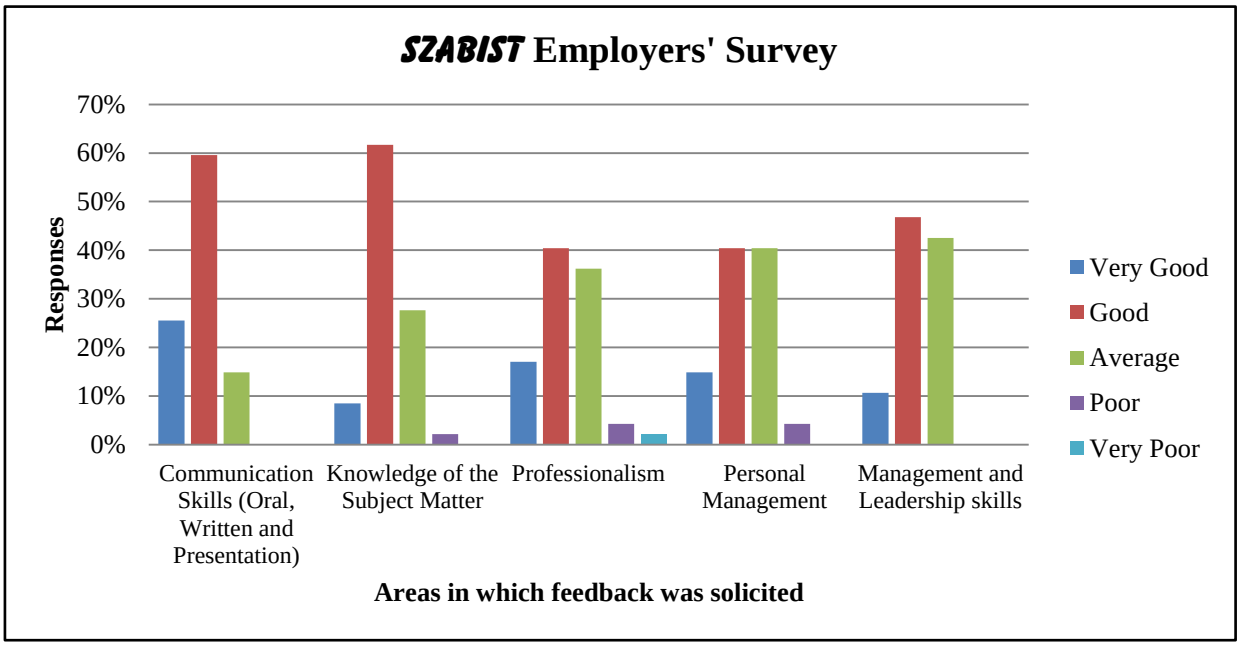

Figure 1.1

[2] Table 1.3 of PT Report is the Table 4.2 (Outcomes versus Objectives) of AT Report
[3] The source of information is Employer Survey.

c. Alumni Survey[4]

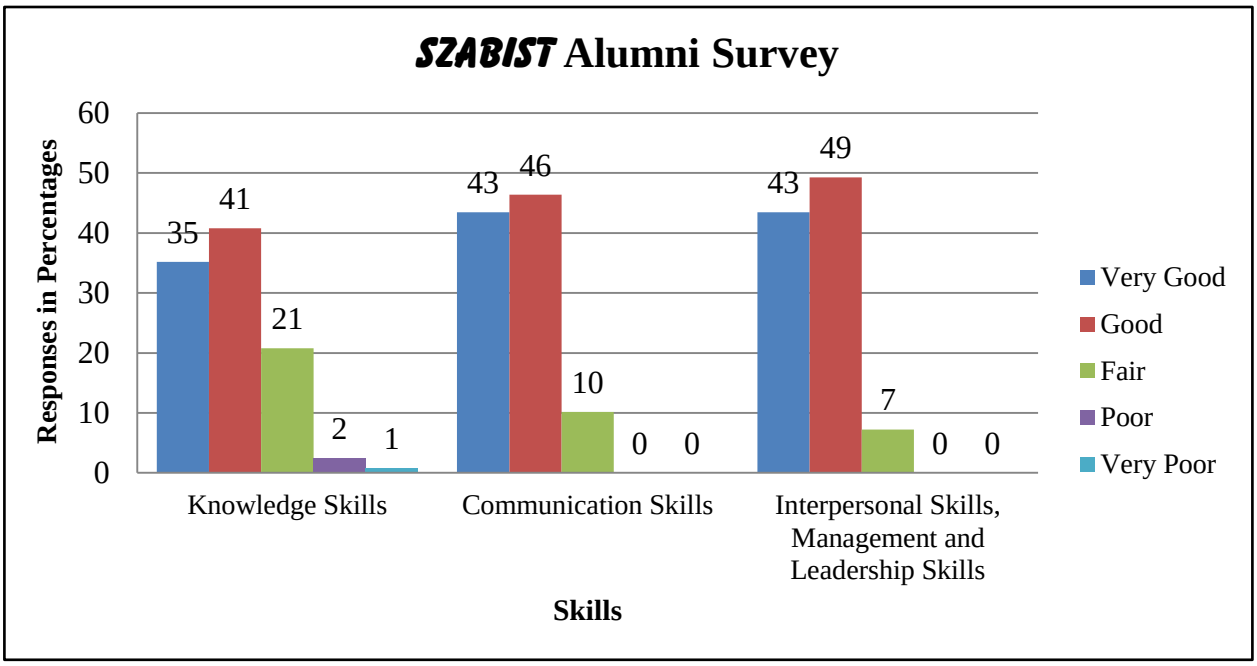

Figure 1.2

d. Graduating Student's Survey[5]

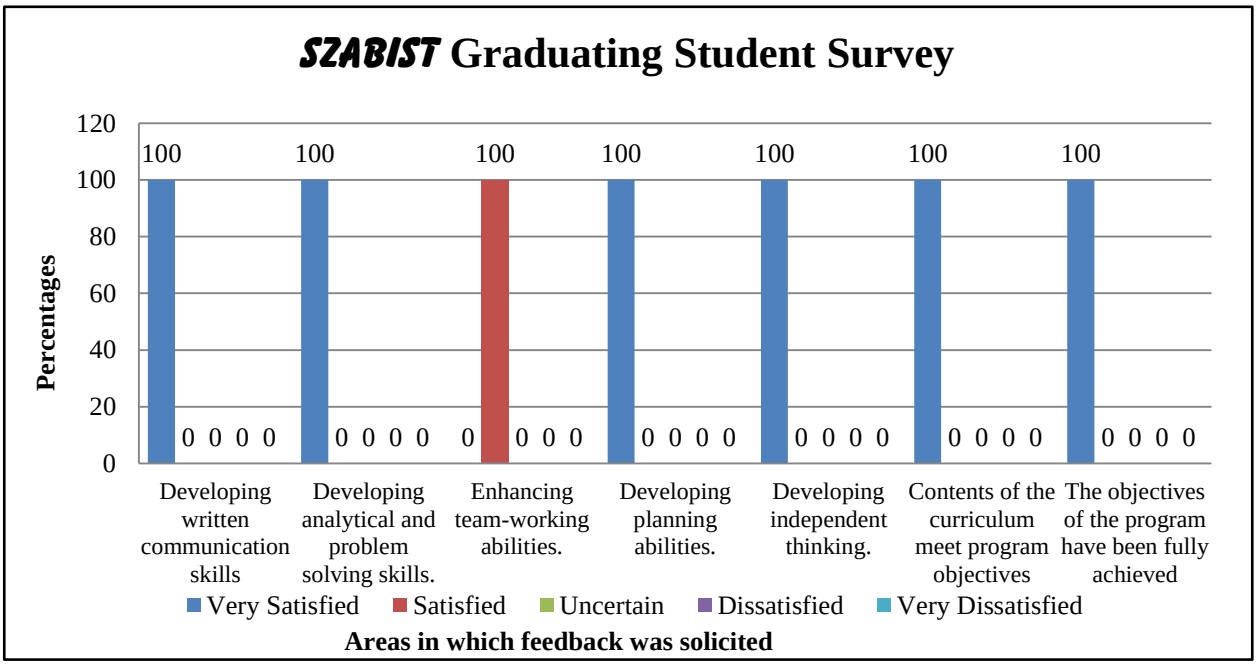

Figure 1.3

[4] The source of information is Alumni Survey.
[5] The source of information is Graduating Student Survey.

Standard 1-3: Assessment Results and Improvement Plans

a. Describe the action taken based on the periodic assessments

- Board of studies meetings are held to evaluate and upgrade the course contents
- Students counseling is done to encourage more students to pursue post-doctoral studies
- Students are required to attend different workshops and thesis/dissertation defense
- Course evaluations are conducted.

b. Describe major program improvement plans based on recent assessments

Program Improvement Plan based on Recent Assessment

- Integrate research project with the areas of specialization and include industry projects as well along with theoretical and academic research
- Introduce new courses to cater the market needs
- Changing course delivery from traditional classroom teaching to case-based teaching methodology
- Organize National and International Research Conference on more frequent basis

c. Strengths and weaknesses of the program

Strengths of the program:

- Faculty from diverse industry/corporate backgrounds
- Seminars and workshops conducted on a regular basis
- Strong emphasis on research publication in reputed conferences and journals

Weaknesses of the program:

- Lack of PhD faculty
- Access to digital libraries
- Long waiting times for PhD Proposal defense, PhD Thesis review, and PhD Thesis
- Defense organization

d. Significant future plans for the program

- Research collaboration with established research groups at national and international level
- Changing course delivery from traditional classroom teaching to case-based teaching methodology

Standard 1-4: Overall Performance Using Quantifiable Measures[4]

a. Indicate percentage of successful students during study years showing their average CGPA per semester, time required to complete the program, and dropout ratio of students

The maximum time to complete the PhD-Computing program is 7 years.

Average CGPAs

The following table consists of average CGPAs of the PhD Computing program:

Semester GPA	Fall 2012	Spring 2013	Fall 2013	Spring 2014	Fall 2014	Spring 2015	Total Average
Average GPA	2.94	3.53	3.46	3.44	2.94	3.23	3.26

Table 1.4: Average CGPA

Dropout Ratio

	Fall 2012	Spring 2013	Fall 2013	Spring 2014	Fall 2014	Spring 2015	Total Average
Dropouts	0	0	1	0	0	0	0.17
Enrollment	13	6	7	6	6	6	7.33
Dropout Ratio	0	0	0.14	0	0	0	0.02

Table 1.5: Drop-out Ratio

b. Employers' survey[6]

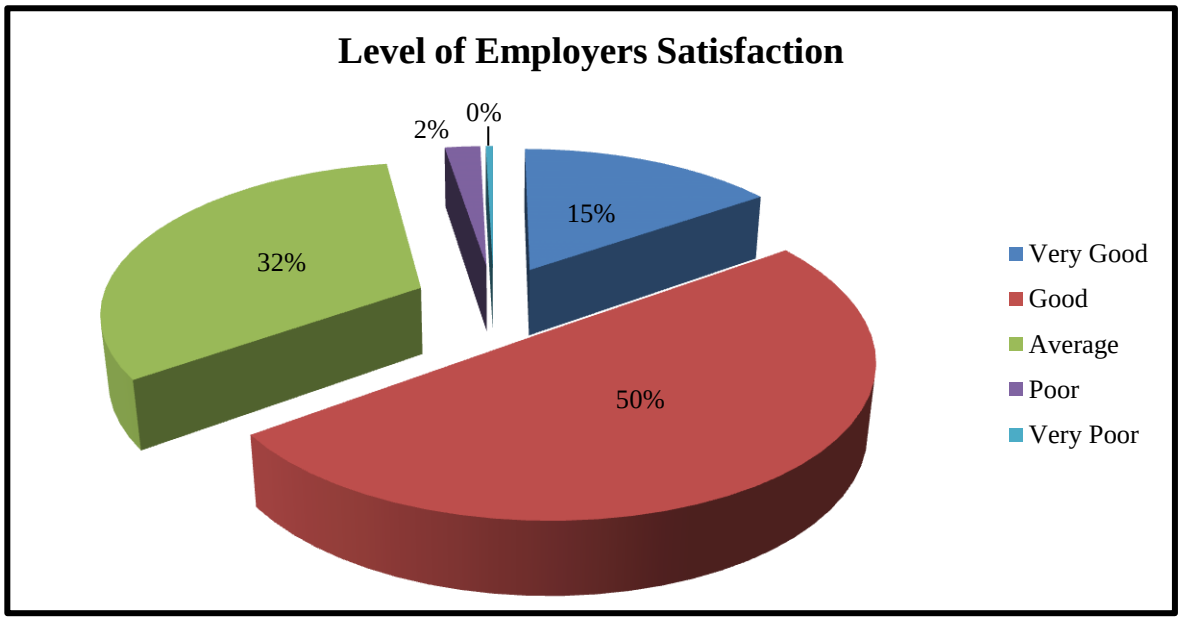

Figure 1.4

c. Percentage of Student Evaluation/Assessment Results for all the courses and faculty[7]

Year	Semester	Faculty & Courses Rating					
		Excellent	Very Good	Good	Satisfactory	Not Satisfactory	Poor
2013	Spring	67	22	0	11	0	0
	Fall	88	0	12	0	0	0
2014	Spring	80	20	0	0	0	0
	Fall	67	33	0	0	0	0
2015	Spring	83	17	0	0	0	0
	Fall	100	0	0	0	0	0

Table 1.6: Faculty & Courses Rating

[6] The source of information is Employer Survey.
[7] The source of information is the Academic Office.

d. Percentage of research activities i.e. journal publications, funded projects, conference publications per faculty and per year, and the faculty awarded excellence in research[8]

Research Activities

Papers published at Journal of Independent Studies and Research – Computing Volume 13 Number 1, January 2015

- Abdul Samad and Saif ur Rahman, Comparative Analysis of Collaborative Filtering on GraphLab, MLlib and Mahout
- Muhammad Adnan and Muhammad Rafi, Extracting Patterns from Global Terrorist Dataset (GTD) Using Co-Clustering Approach
- Amjad Ali and Muhammad Rafi, Probabilistic vs. Soft Computing for Classifying Credit Card Transactions. A Case Study of Pakistani's Credit Card Data
- Fariha Majeed and Saif ur Rahman, Graph Visualization Tools: A Comparative Analysis
- Haider Qutbuddin and Saif ur Rahman, Analysis of SSD Utilization by Graph Processing Systems
- Haque Nawaz and Hasnain Mansoor Ali, Performance Analysis of Table Driven and Event Driven Protocols for Voice and Video Services in MANET
- Maher Baloch and Muhammad Rafi, An Investigation on Topic Maps Based Document Classification with Unbalance Classes
- Mudasser Iqbal and Saif ur Rahman, Standard Framework for Comparison of Graph Partitioning Techniques
- Murtaza Munawar Fazal and Muhammad Rafi, A Semi-supervised Approach to Document Clustering with Sequence Constraints
- Vikram Kumar Kirpalani and Muhammad Ejaz Tayab, Enhancing Data Quality Using Human Computation and Crowd Sourcing
- Engr. Reema Qaiser Khan and Engr. Wafa Qaiser Khan, Urdu Optical Character Recognition Technique for Jameel Noori Nastaleeq Script

Papers published at Journal of Independent Studies and Research – Computing Volume 12 Number 2, July 2014

- Zeeshan Ahmed and Syed Saif ur Rahman, A Model To Capture Interaction Between Data Provenance and Workflow Provenance
- Murtaza Munawar Fazal and Muhammad Rafi, Clustering Textual Documents by Extracting Sequence from Word-of-Graph

[8] The sources of information are Program Managers.

- Jawed Akhtar and Husnain Mansoor, Comparative Analysis of Payment System and Suggesting Solutions for Data Security Issues in Pakistan
- Muhammad Adnan and Muhammad Rafi, Document Clustering with Explicity Semantic Analysis (ESA)
- Sugandh Wafai and Zohaib Jan, Proposed Ontology for Requirements Reuse

Papers published at Journal of Independent Studies and Research – Computing Volume 11 Number 2, July 2013

- Ali Anum Abbas and Muhammad Naveed Dilber, A Survey: Online And Mobile Banking Risks, Security Issues and Challenges On Mobile Devices and its User
- Aeman Jamali and Asim Riaz, Enhance The Content Search By Using Semantic Web
- Adrash Khalique and Rahim Hasnani, Large Scale Hierarchical Classification
- Waqar Ahmed and Uzair Hashmi, Security Visualization on Big Data
- Behroz Mirza and Muhammad Rafi, Reflector – A Dynamic Manifestation of Turing Machines with Time and Space
- Sajjad Ali Khan and Zohaib Jan, To Identify the Criminals Tendency of a Person by Analysis of their Social Media
- Fariya Ghori and Kashif Abbasi, Secure User Authentication Using Graphical Passwords

Papers published at Journal of Independent Studies and Research – Computing Volume 11 Number 1, January 2013

- Maliha Amir Ali Charania and Dr. Husnain Mansoor, Channel Assignment Algorithms and Strategies for Wireless Mesh Networks
- M. Talha Umair and Dr. Syed Saif ur Rehman, Comparative Analysis of Data Mining Techniques for Fraud Detection
- Salma Tajuddin and Dr. Imran Amin, Face Recognition as an Embedded System
- Annum Abbass and Muhammad Naveed Dilber, Mobility Management in Vehicular Networks
- Hina Shakir and Dr. S. Talha Ahsan, Multimodal Medical Image Registration using Discrete Wavelet Transform
- Hayat Ali, Ontological Knowledge Management System of Islamic Concepts
- Tabraiz Anwer and Adeel Ahmed, Predictive Analysis on Electoral Poll using Micro-Blogging (twitter)

Papers published at Journal of Independent Studies and Research – Computing Volume 10 Number 2, July 2012

- Amarta Lohano and S. Mustafa Ali Zaidi. Wireless Sensor Networks Optimal Node Placement by Soft-Computing (April 2012)
- Hina Shakir and Dr. S. Talha Ahsan. Lossy Compression of Encrypted Images using Discrete Wavelet Transform
- Khurram Shahzad. Requirements Prioritization in Sprint via Time Quadrants
- Muhammad Ahmed and Dr. S. Saif Ur Rahman. A Framework for Smooth Adoption of Emerging Technologies for Rich Internet Application (RIA) Development Focusing on HTML5
- Rida Fatima and Adeel Ahmed. Role of Graph Databases in Social Networking Sites: A Performance Comparison between Graph Database Neo4j and Relational Database Mysql in Social Networking Sites
- S. Rashid Ali. An Examination of Interactive E-learning Systems (IELS) for Adult Learning and Implementation Issues in the Education Sector of Pakistan
- Tabraiz Anwer and Adeel Ahmed. Automatic Generation of Domain Specific Keywords

Papers published at Journal of Independent Studies and Research – Computing Volume 10 Number 1, January 2012

- Rahim Hasnani and Muhammad Rafi. An Investigation into the area of Brain Imaging using Machine Learning Techniques
- Ali Zaman and S. Mustafa Ali Zaidi. Applying the Cuckoo Search to the TSP problem
- Zuhaib Memon and Asim Riaz. Comparative Analysis of RIM and Other Models Used For Mapping Legacy Databases Schema for HL7
- Ali Muhammad Nizamani and Prof.Naeem Ul Hassan Janjua. Isolated Handwritten Character Recognition in Sindhi Language using Artificial Neural Network
- Rahim Hasnani, Dr. Hasnain Zafar and Syed Zeeshan Arshad. Prediction Model for Survival of Trauma Patients
- Muhammad Kamran and Usman Waheed. Project Manager VS. ScrumMaster
- Amarta Lohano and Syed Mustafa Ali Zaidi. Use of Genetic Algorithm for Optimal Node Placement in Wireless Sensor Networks

e. Number of short courses/workshops/seminars

The details of the activities performed at community service level are stated below:

Type of Activity	Number
Workshops	6
Conferences	8

Table 1.7

List of Workshops

1. Photoshop Workshop 2015
2. Code fest 2015
3. WordPress for Dummies II Workshop on January 17, 2012
4. SZABIST Mobile Development Workshop/Conference October 23, 2011
5. WordPress for Dummies Workshop on November 19, 2011
6. Hacking Workshop

List of Conferences

1. SZABIST's International Research Conference On Management, Computing and Social Sciences & Economics in Collaboration with the Faculty of Management and Administrative Sciences, University of Karachi December 13, 2014
2. 17th National Research Conference On Management, Computing and Social Sciences & Economics Saturday, May 10, 2014
3. SZABIST's International Research Conference On Management, Computing and Social Sciences & Economics in Collaboration with the Faculty of Management and Administrative Sciences, University of Karachi December 14, 2013
4. 17th National Research Conference On Management, Computing and Social Sciences & Economics Saturday, May 18, 2013
5. SZABIST's International Research Conference On Management, Computing and Social Sciences & Economics in Collaboration with the Faculty of Management and Administrative Sciences, University of Karachi December 14 & 15, 2012
6. 17th National Research Conference On Management, Computing and Social Sciences & Economics Saturday, May 19, 2012
7. SZABIST's International Research Conference On Management, Computing and Social Sciences & Economics in Collaboration with the Faculty of Management and Administrative Sciences, University of Karachi December 16 & 17, 2011

8. 17th National Research Conference on Management, Computing and Social Sciences & Economics Saturday, May 14, 2011.

f. Faculty and student surveys[6]

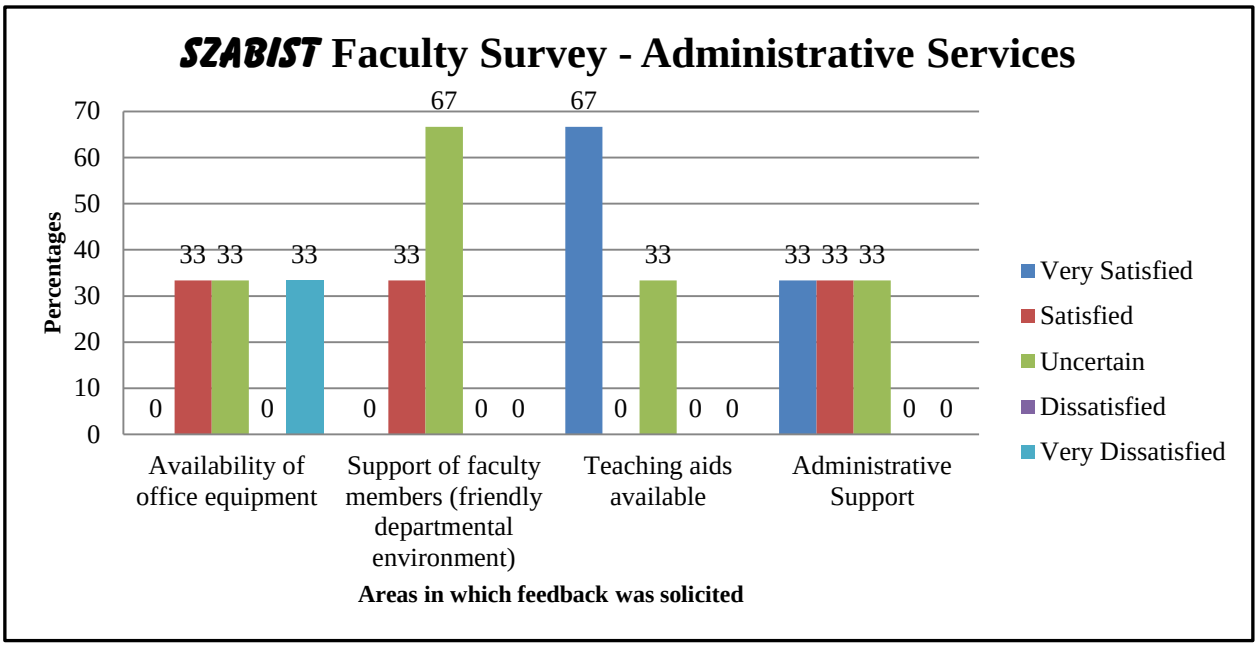

Figure 1.5

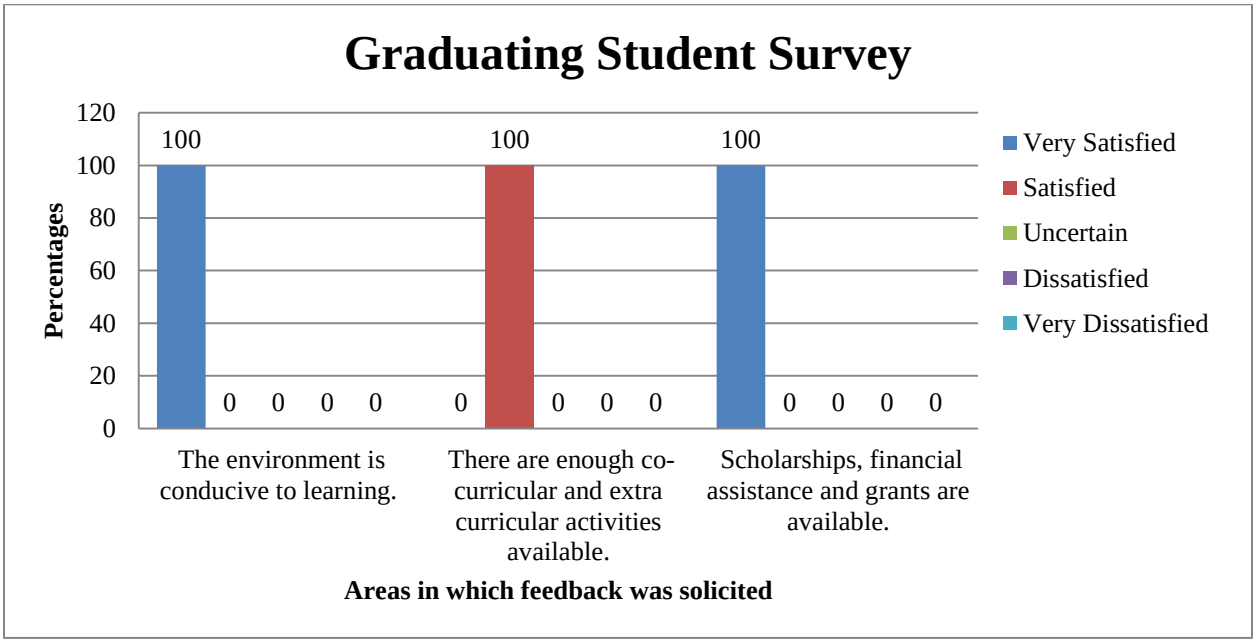

Figure 1.6

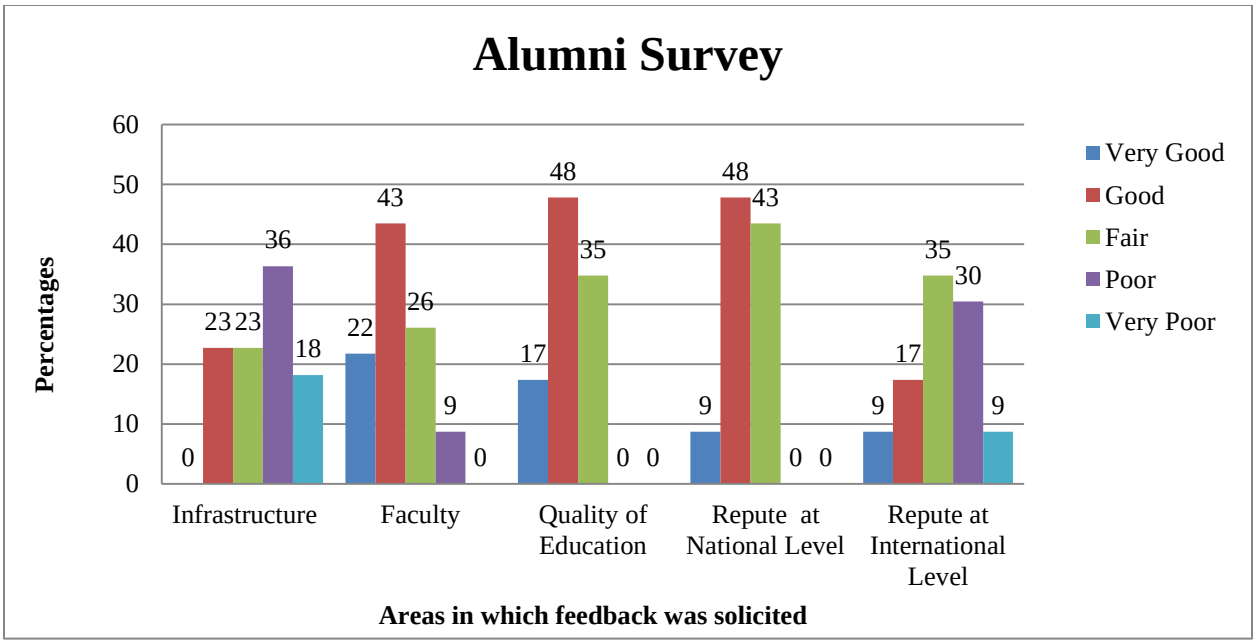
Alumni Survey
Percentages
60
50
40
30
20
10
0
0
23
23
36
18
22
43
26
9
0
17
48
35
0
0
9
48
43
0
0
9
17
35
30
9
Infrastructure
Faculty
Quality of Education
Repute at National Level
Repute at International Level
Areas in which feedback was solicited
Very Good
Good
Fair
Poor
Very Poor

Figure 1.7

Criterion 2: Curriculum Design and Organization

Standard 2-1	***Courses vs. Objectives***
Standard 2-2	***Theory, Problem Analysis / Solution and Design in Program***
Standard 2-3	***Mathematics & Basic Sciences Requirements***
Standard 2-4	***Major Requirements as Specified by Accreditation Body***
Standard 2-5	***Humanities, Social Sciences, Arts, Ethical, Professional & Other Requirements***
Standard 2-6	***Information Technology Content Integration throughout the Program***
Standard 2-7	***Communication Skills (Oral & Written)***

Criterion 2: Curriculum Design and Organization[9]

Standard 2-1: Courses vs. Objectives

a. Title of Degree:

Philosophy of Doctorate in the Faculty of Computing;

b. Definition of credit hours:

A credit hour means teaching a theory course for one hour each week throughout the semester. This means for theory, One Credit Hour is equals to one Contact Hour per week. PhD program requires students to complete 48 credit hours (i.e. 3 credit hours per week). Course work of 18 credits (6 courses) is needed which includes core courses, elective and independent study. Dissertation of 30 credits is also required to complete.

(Note: One credit hour in laboratory or practical work/project would require lab contact of three hours per week throughout the semester. This means for lab, One Credit Hour is equals to three Contact Hour per week.)

c. Curriculum Plan

Semester – I	Semester – II	Semester – III	Semester - IV	Semester - V	Semester - VI
Research Methodology	Independent Study	Dissertation	Dissertation	Dissertation	Dissertation
Elective 1	Elective 3				
Elective 2	Elective 4				

Table 2.1

* All courses are of 3 credits except Dissertation which is of 6 credits.

* IS - Independent Study of 3 Credit Hours

* Pre requisite of IS and thesis is Research methodology

[9] The sources of information are Program Managers.

List of Electives

Real-Time Systems	Software Requirement Engineering	Advanced Computer Networks
Digital Image Processing	Software System Architecture	Network Security
Machine Learning	Software System Quality	Applied Cryptography
Data Mining	Advanced Software Engineering	Information Security
Reverse Engineering	Software Analysis and Testing	Telecom Policies and Regulations
Digital Forensics and Malware Analysis	Web Engineering	Mobile Ad-hoc Networks
Advanced Resource Sharing Architecture	Software Project Management	Advanced Data Communications
Computer Vision		
Robotics		
Advanced Database Design		
Distributed Computing		
Systems and Network Programming		

Table 2.2

d. Curriculum Course Requirements

Semester	Course Number	Research Courses	Elective Courses
	CS 6101	Research methodology (3)	
	CS 6xxx		Elective – 1 (3)
	CS 6xxx		Elective – 2 (3)
	CS 6xxx	Independent Study (3)	
	CS 6xxx		Elective – 3 (3)
	CS 6xxx		Elective – 4 (3)
3	CS 6xxx	Dissertation (6)	
4	CS 6xxx	Dissertation (6)	
5	CS 6xxx	Dissertation (6)	
6	CS 6xxx	Dissertation (6)	
	Total Credit Hours	**30**	**12**

Table 2.3 Curriculum Course Requirements[10]

*All courses are of 3 credits except dissertation.

* Elective courses list is provided above in Table 2.2

[10] Table 2.3 of PT Report is the Table 4.3 (Curriculum Course Requirements) of AT Report

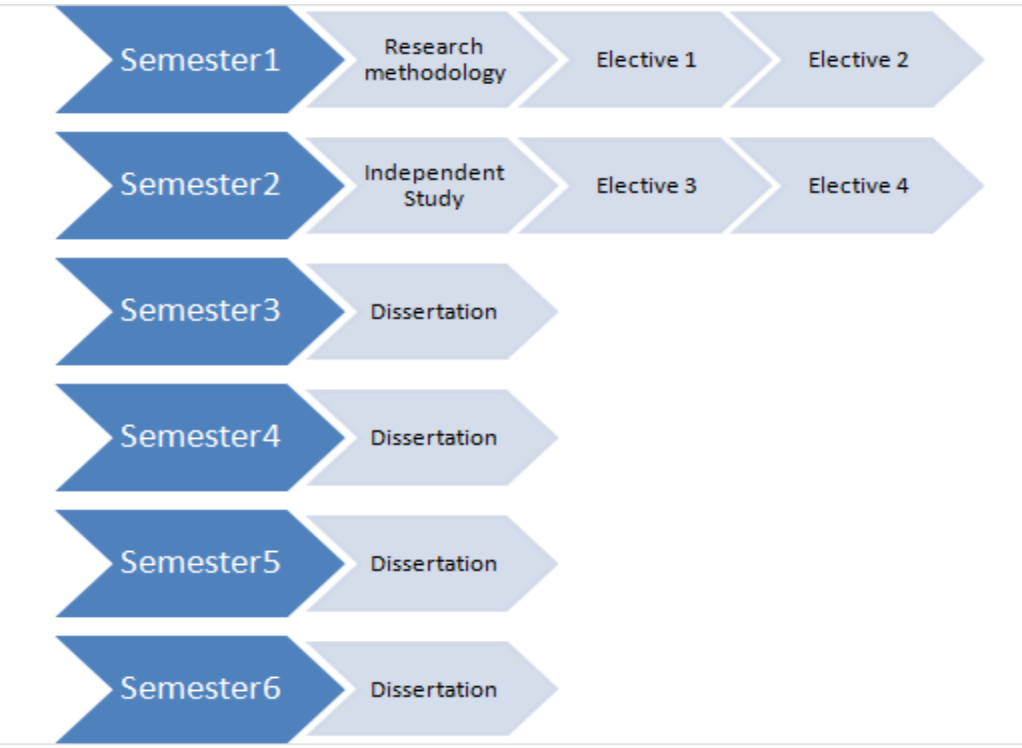

Figure 2.1

e. Courses versus Objectives

Courses	Program Objectives			
	1	2	3	4
Research Methodology	X	X		
Elective 1	X	X		
Elective 2	X	X		X
Independent Study		X	X	X
Elective 3	X	X		
Elective 4	X	X	X	
Dissertation		X	X	X
Dissertation		X	X	X
Dissertation		X	X	X
Dissertation		X	X	X

Table 2.4 Courses versus Objectives

* Elective subjects. Objectives satisfied will depend upon the elective selected by the student

f. Courses versus Outcomes

Courses	Program						
	1	2	3	4	5	6	7
CS 6101	X	X	X	X	X	X	X
CS 6xxx	X	X	X	X	X	X	X
CS 6xxx	X	X	X	X	X	X	X
CS 6xxx	X	X	X	X	X	X	X
CS 6xxx	X	X	X	X	X	X	X
CS 6xxx	X	X	X	X	X	X	X
CS 6xxx	X	X	X	X	X	X	X
CS 6xxx	X	X	X	X	X	X	X
CS 6xxx	X	X	X	X	X	X	X
CS 6xxx	X	X	X	X	X	X	X

Table 2.5 Courses versus Outcomes[11]

* Elective subject. Outcomes satisfied will depend upon the elective selected by the student

Standard 2-2: Theory, Problem Analysis / Solution and Design

The courses comprise of theoretical knowledge and practical applications. In almost all courses students undergo through rigorous projects to apply the knowledge and skills they acquire in a course. Also these diverse projects help them to equip various skills like team building, conflict resolution, and ethical decision making etc., which are necessary for today's complex organizations.

Element	Courses
Theoretical Background	Research Methodology
Problem analysis and solution *Students select any four courses	Elective 1, Elective 2, Elective 3, Elective 4
Research & Applications *If the student is taking a research project/thesis they will have to take 9 courses all together with 6 credit hours of research project.	Independent Study, Dissertation

Table 2.6 Standard 2-2 Requirements[12]

Standards 2-3: Mathematics and Basic Sciences Requirement

Information is provided in Standard 2-4.

[11] Table 2.5 of PT Report is the Table 4.4 (Courses versus Outcomes) of AT Report
[12] Table 2.6 of PT Report is the Table 4.5 (Standard 2-2 requirements) of AT Report

Standard 2-4: Major Requirements by Accreditation Body

Major requirements of HEC as specified in "**Criteria for MS/M.Phil and Ph.D. Programs**". This document is available at HEC website. Ref:

Program	Core Courses	Research Courses
PhD 48 Credit Hours	CS 6101	CS 6xxx CS 6xxx CS 6xxx CS 6xxx CS 6xxx CS 6xxx

Table 2.7

Admission requirement:

1. For admission into the PhD minimum CGPA 3.0 (out of 4.0 in the Semester System) or First Division (in the Annual System) in M.Phil/M.S/Equivalent is required.

Subject Test:

2. A subject test conducted by the National Testing Service (NTS) or ETS, USA in the area of specialization chosen at the PhD level must be cleared prior to admission for the PhD Program.
    a. In the case of GAT Subject test (http://www.nts.org.pk/GAT/gatsubject.asp) a minimum of 60% marks is required to pass the test.
    b. In the case GRE subject test, the minimum score will be acceptable as follows:
        i. 60% Percentile Score
        ii. If the Test is not available in NTS subject list, then a University Committee consisting of at least 3 PhD faculty members in the subject area and approved by the HEC will conduct the Test at par with GRE Subject Test and qualifying score for this will be 70% score.
    c. Students admitted in PhD Programs after August 25, 2010 have to submit the requisite GAT Subject or GRE Subject within period of one year.

Course Work:

3. Course work of 18 credit hours preferably in the first year is required to be completed and followed by a comprehensive examination for granting candidacy as PhD researcher.

Foreign Expert Evaluation:

4. The Ph.D. Dissertation must be evaluated by at least two Ph.D. experts from technologically/academically advanced foreign countries in addition to local Committee members.

Open defense:

5. An open defense of Dissertation is essential part of PhD Program after positive evaluation.

Research Paper:

6. Acceptance/publication of at least one research paper in an HEC approved "X" category journal is a requirement for the award of Ph.D. degree ("Y" in case of Social Sciences only).

Plagiarism Test:

7. The Plagiarism Test must be conducted on the Dissertation before its submission to the two foreign experts, as described below.

Copy of PhD Dissertation to HEC:

8. A copy of Ph.D. Dissertation (both hard and soft) must be submitted to HEC for record in Ph.D. Country Directory and for attestation of the PhD degree by the HEC in future.

Conduct of PhD Program:

9. There should be **at least 3 relevant full time Ph.D. Faculty members** in a department to launch the Ph.D. program.

The maximum number of Ph.D. students under the supervision of a full time faculty member is **five** which may be increased to **eight** under special circumstances in certain teaching departments subject to prior approval of the Higher Education Commission (HEC).

Standards 2-5: Humanities. Social Sciences, Arts, Ethical. Professional & Other Requirements

Information is provided in Standard 2-4.

Standards 2-6: Information Technology Content Integration throughout the Program

Information is provided in Standard 2-4.

Standards 2-7: Communication Skills (Oral & Written)

Information is provided in Standard 2-4.

Criterion 3: Laboratories and Computing Facilities

Standard 3- 1	***Lab Manuals / Documentation / Instructions***
Standard 3- 2	***Adequate Support Personnel for Labs***
Standard 3- 3	***Adequate Computing Infrastructure and Facilities***

Criterion 3: Laboratories and Computing Facilities[13]

SZABIST is equipped with state of the art computing facilities with high bandwidth connectivity to the internet. Moreover, Wi-Fi is enabled in 90 and 100 Campus; as a result, all PhD Computing students with Wi-Fi enabled devices can access all network resources wirelessly.

At the time of registration, a separate user ID and password is assigned to all students to access the ZABDESK.

Computer Labs are open to all students for computing and printing facilities from 8:00am to

10:00pm from Monday to Saturday. Color and Laser printing is available at nominal cost.

To ensure the integrity of the network, students are not allowed to install their own software programs on SZABIST computers. Should additional software be required to under-take a course-related assignment, students first seek written approval of the concerned faculty and contact the Manager Systems.

To handle sudden and abrupt power interruptions, a five minute power back up is available for all computers with UPS facility.

A ***Lab Schedule*** is maintained to avoid any confusion and to allow all student groups to get adequate time at work stations. During ***open hours*** the use of the labs is based on first-come-first-serve basis. Labs 1 and 2 have 45 workstations. Labs 3 and 4 have 45 workstations. Lab 5 has 32 work stations and Lab 6 has 32 workstations.

[13] The sources of information are; Director IT, Manager Systems and Computer Labs staff.

Lab Title	Lab 1 and 2
Location	90 Campus
Objectives	• For holding Lab sessions and course related sessions or exams for classes with less than 45 students. • For Internet usage • For Printing of reports, assignments To access HEC Digital Library link, SZABIST e-library
Adequacy for instruction	Adequate for 45 students at a time. 46 desktops systems, and two White boards available. Projector available from Academics office on request by course instructor.
PhD-CS Courses taught	CS 6101, CS 6xxx, CS 6xxx, CS 6xxx, CS 6xxx, CS 6xxx, CS 6xxx, CS 6xxx, CS 6xxx, CS 6xxx
Software available	Windows 7 Professional operating system enabled workstations. Microsoft Office 2010 (Word, Excel, PowerPoint, MS Visio, MS Project), MS Visual Studio, Oracle 10g and Developer/6i, Turbo C++, SPSS 14, Client software
Major equipment	Colored Scanner, Black and White Printer, Colored Printer, Switch Full Deluxe (48 Ports)
Safety regulations	Available and communicated*

Table 3.1: Computer Labs Information

Lab Title	Lab 3
Location	100 Campus
Objectives	• For holding Lab sessions and course related sessions or exams for classes with less than 45 students. • For Internet usage • For Printing of reports, assignments To access HEC Digital Library, SZABIST e-library
Adequacy for instruction	Adequate for 45 students at a time. 45 desktops systems, and two White boards available. Projector available from Academics office on request by course instructor.
PhD-CS Courses taught	CS 6101, CS 6xxx, CS 6xxx, CS 6xxx, CS 6xxx, CS 6xxx, CS 6xxx, CS 6xxx, CS 6xxx, CS 6xxx
Software available	Windows 7 Professional operating system enabled workstations. GNS3, ns2, Microsoft Office 2010 (Word, Excel, PowerPoint, MS Visio, MS Project), SPSS 14,MS Studio.Net, Platform, Oracle 10g and Developer/6i, Turbo C++, Visual tools, Macromedia Flash, Adobe Acrobat reader, MSSQL Client and other utilities installed.
Major equipment	HP Color Printer, 1 Black Printer, 45 Desktop PCs, Switch Full Deluxe (48 Ports)
Safety regulations	Available and communicated

Table 3.2: Computer Lab Information

Lab Title	Lab 4
Location	100 campus
Objectives	• For holding Lab sessions and course related sessions or exams for classes with more than 31 students. • For Internet usage • For Printing of reports, assignments • To access HEC Digital Library, SZABIST e-library
Adequacy for instruction	Adequate for 31 students at a time. 31 desktops systems, and two White boards available. Projector available from Academics office on request by course instructor.
PhD-CS Courses taught	CS 6101, CS 6xxx, CS 6xxx, CS 6xxx, CS 6xxx, CS 6xxx, CS 6xxx, CS 6xxx, CS 6xxx, CS 6xxx
Software available	Windows 7 Professional operating system enabled workstations. GNS3, ns2, Microsoft Office 2010 (Word, Excel, PowerPoint, MS Visio, MS Project), SPSS 14,MS Studio.Net, Platform, Oracle 10g and Developer/6i, Turbo C++, Visual tools, Macromedia Flash, Adobe Acrobat reader, MSSQL Client and other utilities installed.
Major equipment	1 Black Printer, 1 Color Printer, 1 Scanner, 31 Desktops, Switch Full Deluxe with adequate ports.
Safety regulations	Available and communicated

Table 3.3: Computer Lab Information

Lab Title	Lab 5
Location	100 Campus
Objectives	• For holding Lab sessions and course related sessions or exams for classes with less than 31 students. • For Internet usage • For Printing of reports, assignments To access HEC Digital Library, SZABIST e-library
Adequacy for instruction	Adequate for 31 students at a time. 31 desktops systems, and two White boards available. Projector available from Academics office on request by course instructor.
PhD-CS Courses taught	CS 6101, CS 6xxx, CS 6xxx, CS 6xxx, CS 6xxx, CS 6xxx, CS 6xxx, CS 6xxx, CS 6xxx, CS 6xxx
Software available	Windows 7 Professional operating system enabled workstations. Microsoft Office 2010 (Word, Excel, PowerPoint, MS Visio, MS Project), SPSS 14,, MS Studio.Net, Platform, Oracle 10g and Developer/6i, Turbo C++, Visual tools, Macromedia Flash, Adobe Acrobat reader, MSSQL Client and other utilities installed.
Major equipment	HP Color Printer, 31 Desktop PCs, Switch Full Deluxe (48 Ports), Black Printer, Scanner
Safety regulations	Available and communicated

Table 3.4: Computer Lab Information

Lab Title	Lab 6
Location	100 campus
Objectives	• For holding Lab sessions and course related sessions or exams for classes with more than 25 students. • For Internet usage • For Printing of reports, assignments • To access HEC Digital Library, SZABIST e-library
Adequacy for instruction	Adequate for 25 students at a time. 25 desktops systems, and two White boards available. Projector available from Academics office on request by course instructor.
PhD-CS Courses taught	CS 6101, CS 6xxx, CS 6xxx, CS 6xxx, CS 6xxx, CS 6xxx, CS 6xxx, CS 6xxx, CS 6xxx, CS 6xxx
Software available	Windows 7 Professional operating system enabled workstations. Microsoft Office 2010 (Word, Excel, PowerPoint, MS Visio, MS Project), SPSS 14,, MS Studio.Net, Platform, Oracle 10g and Developer/6i, Turbo C++, Visual tools, Macromedia Flash, Adobe Acrobat reader, MSSQL Client and other utilities installed.
Major equipment	1 Black Printer, 1 Color Printer, 1 Scanner, 25 Desktops, Switch Full Deluxe with adequate ports.
Safety regulations	Available and communicated

Table 3.5: Research Computer Lab Information

Standard 3-1: Lab Manuals / Documentation / Instructions

a. Explain how students and faculty have adequate and timely access to the manuals/documentation and instructions

Instructions are clearly written on the Notice boards pertaining to:

- Internet usage Proxy setting,
- Proxy setting to use HEC Digital Library,
- Instructions and settings to use printer
- Rules and Regulations for Lab usage
- Lab classes Schedule
- ZabDesk proxy settings

However, no written, easy to use manuals are available in the computer labs for learning to use ZABDESK, Microsoft Office Programs etc.

b. Are the resources available sufficient for the program?

Yes, the resources are sufficient for the program.

Standard 3-2: Adequate Support Personnel for Labs

Indicate for each Laboratory adequate support personnel, level of support, nature and extent of instructional support

Laboratories are furnished with a reasonable number of professional personnel's to provide continuous support to labs, students and faculty. They are constantly guiding students in:

i) How to use and maintain student account password privacy and its importance?

ii) How to use various software and hardware?

New students are given comprehensive guidance by Lab Personnel in getting oriented to ZABDESK usage and online-registration.

A total of 12 dedicated staff members are working at different time slots to ensure unhindered delivery of knowledge. The hierarchical levels of this staff are as follows:*

DESIGNATION	NO. OF PEOPLE
Supervisors i. Lab Administrator ii. Lab Supervisor	 1 1
Computer Lab staff i. System Engineers in Lab number 1 and 2* ii. Associate System Engineers in Lab number 3 iii. Associate System Engineers in Lab number 4 iv. Associate System Engineers in Lab number 5 v. Associate System Engineers in Lab number 6 *Labs 1&2 are interconnected via doorway. Same is true for Labs 5&6.	 2 (Morning / Evening shifts) 2 (Morning / Evening shifts) 2 (Morning / Evening shifts) 2 (Morning / Evening shifts) 2 (Morning / Evening shifts) Total = 10
Attendant	1

Table 3.6: Adequate Support of Personnel for Labs

Computer Lab shifts per Lab	Time Slots	Personnel
Morning	8:00am – 3:00pm	1
Evening	3:00pm – 10:00pm	1

Table 3.7: Computer Lab Shifts per Lab

Standard 3-3: Adequate Computing Infrastructure and Facilities

a. Describe how the computing facilities support the computing component of your program

No.	Particulars	Quantity
1	Servers	20
2	Desktop Computers	296
3	Video Conferencing Equipment	1
4	Color Scanners	3
5	Printers	10
6	Multimedia Projectors	29
7	Local Area Network with 250+ nodes, CISCO 2600 Series Routers, CISCO 2950 series of switches, Laser Printers, Color Printers, Finger Print Devices, Multimedia Equipment and a rich Software Library.	

Table 3.8: Computer Lab Shifts per Lab

b. Are there any shortcomings in the computing infrastructure and facilities?

Based on the information given above, it can be concluded that the computer lab facilities are adequate and up to par for the PhD Computing Program at SZABIST. The above facilities are not exclusively used by PhD Computing program but are shared by the campus. Having stated the above, they are sufficient for the PhD Computing program. This is so since the PhD Computing program is run in evening only (timings 6:30 to 9:30 p.m.) when the graduate programs classes have ended (graduate program class timings 8:00 a.m. till 6:00 p.m.), hence these facilities are fully available to the students. The only deficiency highlighted is the urgent need of student manuals to be placed in the labs to assist them in operating ZABDESK.

Criterion 4: Student Support and Advising

Standard 4-1	***Sufficient Frequency of Course Offering***
Standard 4-2	***Effective Faculty / Student Interaction***
Standard 4-3	***Professional Advising and Counseling***

Criterion 4: Student Support and Advising[14]

Standard 4-1: Sufficient Frequency of Course Offering

a. Provide the department's strategy for course offering

The PhD computing program consists of a total of 06 courses having 1 core course, 4 electives, and 1 independent study. Additionally student have to complete Dissertation of 30 credit hours. If 15 or more students who are repeating the course register then we offer the same course again. We continually review course and curriculum as to make these markets competitive. Generally, the class strength is 15 to 30 students.

b. Explain how often required courses are offered

- All courses are offered as per course plan (attached) given in the prospectus.
- Courses are offered in alternate semesters.
- In case of large number of failures in a course, course is repeated in subsequent semester.
- If students require a specific elective course then that course is offered as and when required provided it satisfies the minimum number of student's criteria.
- No courses are offered in summer as the time required to complete the course is too short.
- Research courses are offered in every semester to facilitate students.

c. Explain how often elective courses are offered

Elective courses are offered for specialization and these are offered from the first semester. Students select from the given set of electives courses depending on which discipline of Computing they intend to adopt in future.

d. Explain how required courses outside the department are managed to be offered in sufficient number and frequency[15]

- PhD Students are allowed to take courses in other programs on the basis of defined equivalency in course catalogue.
- For PhD program there are in house permanent faculty and we invite professionals and outside faculty to take courses as well.

[14] Source: EDC, Student handbook, Prospectus, SSC and Convocation.
[15] Source: Discussion with Program Managers/Previous Timetables

Standard 4-2: Effective Faculty and Student Interaction[16]

Describe how you achieve effective student / faculty interaction in courses taught by more than one person such as two faculty members, a faculty member, and a teaching assistant or a lecturer

We achieve student / faculty interaction through class room discussions and faculty spare exclusive counseling time for individual students. Each faculty, visiting or permanent, has to allocate and spend extra time outside the classroom with students so as to counsel them.

Standard 4-3 Professional Advising and Counseling

a. **Describe how students are informed about program requirements**

Students are informed about program requirements through Advertisements, SZABIST Prospectus, Brochures, Student Hand Book, Official Facebook Page, Newsletter, Admissions Department, Program Heads, and Orientation, Website and ZABDESK guideline.

b. **Describe the advising system and indicate how its effectiveness is measured**

The advising services are provided Executive Development Centre (EDC), Orientations, Seminars, Workshops, Program Coordinators and Faculty.

c. **Describe the students counseling system and how students get professional counseling when needed.**

Each faculty posts counseling hours on the door, so whenever student has a problem in studying, he/she can visit faculty in counseling hours or by appointment. Students can also discuss their problems with program managers when needed.

d. **Indicate if students have access to professional counseling; when necessary**

Students can access EDC, student advisors and faculty. We also arrange professional seminars for students in order to interact with market professionals.

e. **Describe opportunities available for students to interact with practitioners, and to have membership in technical and professional societies**

Students also interact with practitioners in seminars and workshops arranged by various student council societies. The EDC is dedicated to enhance the opportunities students have to be successful in their professional as well as personal life. We facilitate students to adapt to new and developing circumstances that challenge their growth as they progress through each grade. Such support may include academic guidance, career counseling, professional grooming, and student support.

The major responsibilities of SZABIST's Executive Development Center (EDC) are the following:

[16] Source: Personal experience and validation from Coordinator.

Arranging Internships

EDC facilitates arranging Internships for all students and acts as a liaison between the industry and the business students. Every semester, renowned national and multinational companies including banks, financial institutions, FMCGs, Pharmaceuticals and others contact the EDC to conduct their employment tests, interviews and other on-campus recruitment activities to directly induct SZABIST graduates into their organizations.

Thus 6 to 8 week internship with a reputable company is a compulsory pre-requisite for graduation. This is to give the students a foretaste of what actually happens in a commercial firm, an effort to bridge the gulf between the classroom and the corporate world.

Contact is accordingly maintained with major national and multinational companies who are requested to provide internship slots for SZABIST students. To make the internship meaningful, sponsors are urged to comment on the intern's performance which is discussed with the student to apprise him or her about strengths and short comings.

On Campus Drives: Various multinational companies are invited to explain their hiring process to students

EDC provides guidance to students in following manner:

- Resumes writing
- Mock interview
- Entry test preparations
- Queries about jobs and internship placements
- Professional grooming

Job Placements

We are operating in highly competitive job market with hundreds of graduates vying for the available vacancies for Management Trainee positions. Thus, EDC serves as a liaison between job seeking SZABIST graduates and commercial houses. Wherever possible, companies are urged to come for on-campus recruitment after suitable candidates are lined up. If required, students are helped to prepare an effective resume and also explained the technique of successful interviewing.

At least once a year, a 'Job Fair' is held at the college campus where many leading companies are invited to explain their recruitment procedures and the scenario about present and future vacancies.

Graduate Directory

Employers increasingly rely on the graduate directory. It is a compendium which gives CVs of all students who have graduated during the year and it is distributed free of charge to all leading companies, where it serves as a useful reference book to sift appropriate candidates for

present and future vacancies. For ease of reference, students' CVs are arranged separately for each specialization e.g. marketing, finance, human resources, etc.

EDC publishes the Graduate Directory once a year and it is a useful tool to facilitate job placements, which is a major EDC responsibility.

Alumni

Alumni of SZABIST are holding/senior positions in leading companies. It is our endeavor to keep in touch with them and to that end data has to be procured and kept up to date about their current employment status and contact address.

To strengthen the bonds with their alma mater, the alumni are invited as guest speakers on any subject of topical interest before an audience of present students and a dinner for them is periodically arranged as well.

Student Grooming/ Counseling Workshops

SZABIST EDC regularly arranges a Corporate Finesse Week comprising of workshop sessions for its graduating classes across programs. Workshop topics generally include:

Potential Employers in Pakistan; Resume Development; Handling Interviews Effectively; What is an office?; Importance of Business Etiquette; Corporate Dinning Manners; Managing Time; Company Culture; Inter Gender Relations at the Work Place; Road Safety etc. EDC also arranges job fair where students can interact with professionals of top notch organizations directly.

Corporate Networking / Alumni Dinner

SZABIST holds an annual dinner with its leading alumni and adjunct faculty, particularly those who are gold medalists or work in top multinational organizations, to network with the corporate world for innovative curriculum development, internships, placements, sponsorships and joint activities. This activity is facilitated/ arranged by the Executive Development Center (EDC).

Alumni Association

Plans are to form SZABIST Alumni Association to reach, serve and engage all alumni and to foster a lifelong intellectual and emotional connection between the SZABIST and its graduates. The objective is to create a platform to facilitate and initiate projects which can be mutually beneficial for graduates and their alma mater.

Criterion 5: Process Control

Standard 5-1	***Admission Process***
Standard 5-2	***Registration and Students***
Standard 5-3	***Faculty Recruitment and Retention Process***
Standard 5-4	***Effective Teaching and Learning Process***
Standard 5-5	***Program Requirements Completion Process***

Criterion 5: Process Control

Standard 5-1: Admission Criteria

a. Describe the Program Admission Criteria and Process[17]

1. For admission into the PhD minimum CGPA 3.0 (out of 4.0 in the Semester System) or First Division (in the Annual System) in M.Phil/M.S/Equivalent is required.
2. A subject test conducted by the National Testing Service (NTS) or ETS, USA in the area of specialization chosen at the PhD level must be cleared prior to admission for the PhD Program.
   a) In the case of GAT Subject test (http://www.nts.org.pk/GAT/gatsubject.asp) a minimum of 60% marks is required to pass the test.
   b) In the case GRE subject test, the minimum score will be acceptable as follows:
      I. 60% Percentile Score
      II. If the Test is not available in NTS subject list, then a University Committee consisting of at least 3 PhD faculty members in the subject area and approved by the HEC will conduct the Test at par with GRE Subject Test and qualifying score for this will be 70% score.
   d. Students admitted in PhD Programs after August 25, 2010 have to submit the requisite GAT Subject or GRE Subject within period of one year.

[17] Data source is prospectus 2015

b. The Admission Process Flowchart

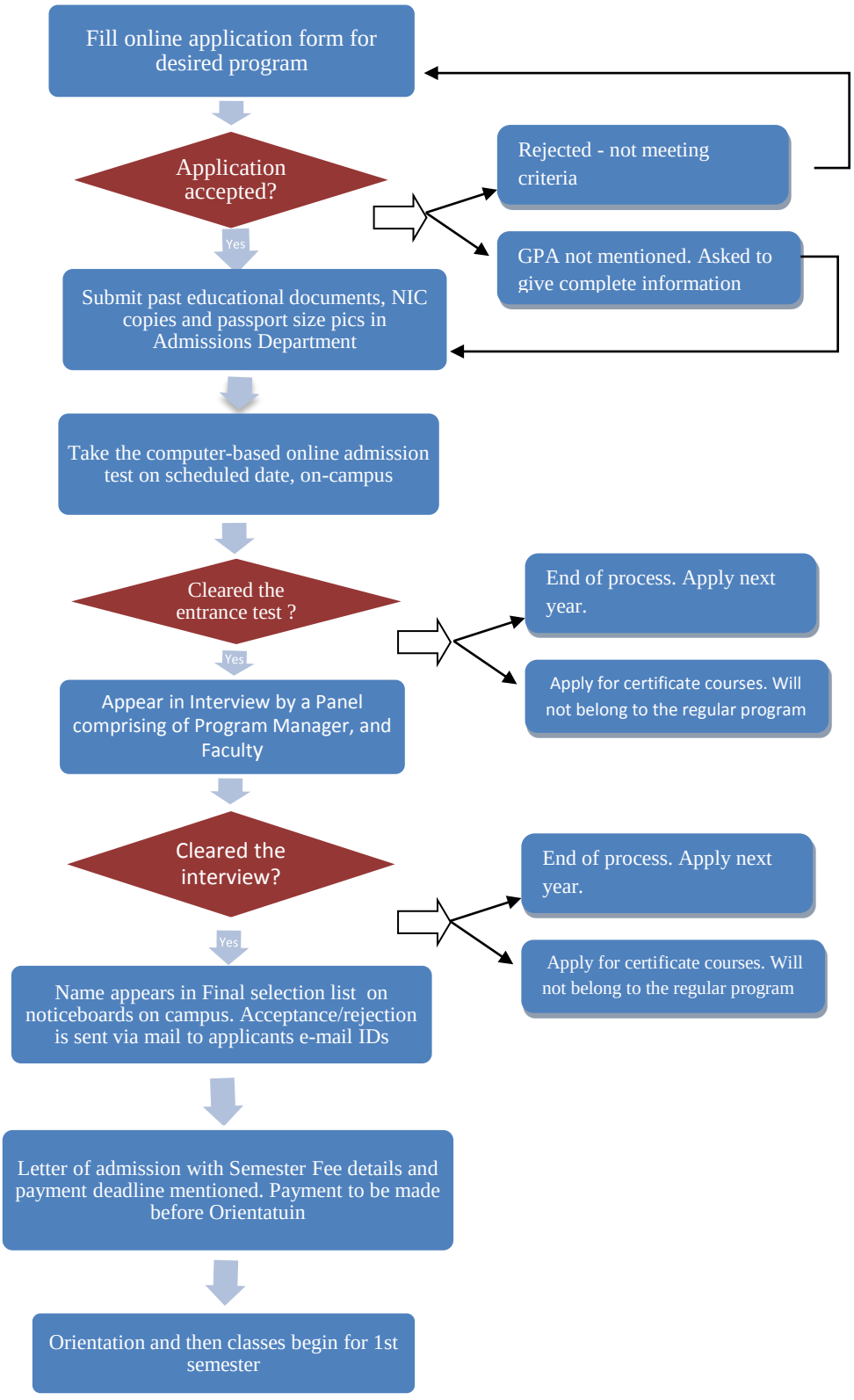

Figure 5.1

c. Describe Policy Regarding Program/Credit Transfer

External Transfer policy:

Transfer into SZABIST can only be accepted for candidates who have studied or are currently studying at HEC recognized universities. Transferring credits must have a minimum of 80% marks. The request for transfers must be made at the time of admissions; the maximum time limit to transfer courses is two years. Candidates will be required to clear all SZABIST admission requirements. Only 40% of all total courses can be transferred, which in case of PhD will be maximum of 2 courses.

Internal Transfer policy:

Transfer is allowed between SZABIST campuses subject to the following conditions:

i. Having completed at least 5 percent of the course work at the original campus.
ii. Having met admission criteria at the transferring campus.
iii. Availability of space at the transferring campus.
iv. Clearance of all past dues.
v. Payment of transfer admissions fee (to the transferring campus).
vi. The transferring student is required to fill the campus transfer form.
vii. Degree will be awarded by the campus where student has completed more than 50 percent of the credit requirements for the degree.

d. Indicate how frequently the admission criteria are evaluated and if the evaluated results are used to improve the process.

Admission criteria and process are reviewed in the **Academic Council meeting**, which is held at least twice a year and as frequently as twice a month.

Some of the positive changes in the Admission process during the last year are:

i. Extended office hours from 9:00 a.m. to 9:00 p.m. to facilitate applicants during May and June.
ii. Storage facility for Admission department has been provided with plans to extend it further in the future.

Standard 5-2: Registration and Students

a. Describe how students are registered in the program

Students must register through ZabDesk, the automated SZABIST Online Registration System. The Academics department sends an email to the committee and SMS to student e-groups, and puts up notices on boards all over campus, explaining the ZABDESK registration process, the last date for registration and the fine for late registration.

Course registration is started one week before the semester starts and is closed one week after semester begins. In the 3rd week a list is generated of students attending courses cross-sectionally and those attending courses with incomplete requisites. The same are asked to deregister from the incorrectly opted course.

Online registration is closed one to two weeks after semester begins and then manual registration is allowed from the main Academic's office upon payment of a late registration fine of Rs. 1000. A deadline for late registration is maintained after which no registration is be allowed.

Students who have not registered are not allowed to attend classes. Registered Students who have paid the fee but have remained absent for three classes are forced to de-register from the course during the fourth week.

Termination of Registration Process

During the first semester only one course withdrawal is allowed. For second semester and onwards, withdrawal of maximum two courses is allowed. The request for withdrawal has to be made prior to the twelfth session through ZabDesk Online Course Withdrawal Process.

The request for withdrawal has to be approved by the Academic Controller, Program Manager and Records Department. In case of withdrawal, a letter grade of W (with no grade points) is awarded.

b. Describe how student academic progress is monitored and how their program of study is verified to adhere to the degree requirements

Monitoring Student Progress:

Attendance: Students are required to maintain 80% attendance throughout the semester in order to qualify for the final exam. Maximum 3 absences are allowed per semester per course. Two late arrivals are equal to 1 absence. In case of non-compliance of attendance rules, a letter grade F will be given in the course.

Mid-term and Final Examination Policy: A mid-term exam is administered in the 8th session. The mid-term exams account for 20-25 percent of the final grade and the maximum duration is 2 hours.

Final Examination is of 2 and half hours duration. Depending on the course content, Test/Exams could be a combination of written and practical questions.

Term papers and projects can be 10-20%, depending on the course content while a deviation of 10% is permissible at the faculty's discretion.

Passing Grades: Minimum passing grade in each course is B minus. F grade in a course does not count as having met the pre-requisite for taking an advanced course. Student with 'repeat grades' such as C+, F must take the course next time as it is offered.

Student may get attendance waiver in D grades, provided the same faculty member is teaching the course. Otherwise attendance waiver approval is required from the Program Manager/Dean.

Probation & Dismissal on Academic Grounds: Students securing a CGPA below 3.00 will be put on probation and a warning letter will be issued. Unless the semester GPA is

brought to 3.00 by the end of the next semester, the student will be dropped from the program.

c. Indicate how frequently the process of registration and monitoring are evaluated and if the evaluation results are used to improve the process.

Evaluation of Registration and Student Monitoring Process

The Student Registration and Student Progress Monitoring processes are regularly reviewed in the ZABDESK through Program Managers.

Academic Heads meeting, held once a month. Any necessary amendment in policy and resolving of individual cases is carried out at these meetings.

In the past one year, the course registration process has been improved. The speed and rate of timely registration by students has been made possible via stringent monitoring of registrations and maintaining strict deadlines and enforcing a hefty fine for late registration. Due to this improvement, class allocation is more accurate and records are updated well in time.

Standard 5-3: Faculty Recruitment and Retention Process

a. Describe the process used to ensure that highly qualified faculty is recruited to the program.

Process of Recruiting and Retaining Highly Qualified Faculty Members[18]

Faculty Recruitment Process

The faculty recruitment process is initiated by the Vice President Academics in consultation with program managers to full-fill any shortage of teaching and research faculty. The human resource department (HRD) of SZABIST advertises the faculty positions through leading newspapers in light of the faculty requirements communicated by the Vice President, and SZABIST website for online applicants. HRD sets up a committee in consultation with the President and Vice President, for short listing the suitable candidates and then sends interview calls. Selection committee, consisting of the Dean of Program, Program Manager and senior faculty conducts the interview of shortlisted candidates and further shortlists the suitable candidates for demo lectures. The demo lecture is mandatory for all despite qualification and experience. At the end of the demo lecture and based on the evaluation criteria, faculty is hired and HRD sends them the offer letter for faculty position.

Improvement in Faculty Recruitment Process

Advertisements to recruit new faculty have been rephrased to ensure further self-screening of applicants. Now 2 years university teaching experience is an eligibility criterion. Also attested copies of degrees are a mandatory requirement for applying.

[18] Sources of information: Dean of Program, HR Department.

This improvement has reduced the applications from 2500 (mostly irrelevant) to approximately 600 relevant, more highly eligible applications.

b. Faculty Recruitment Process

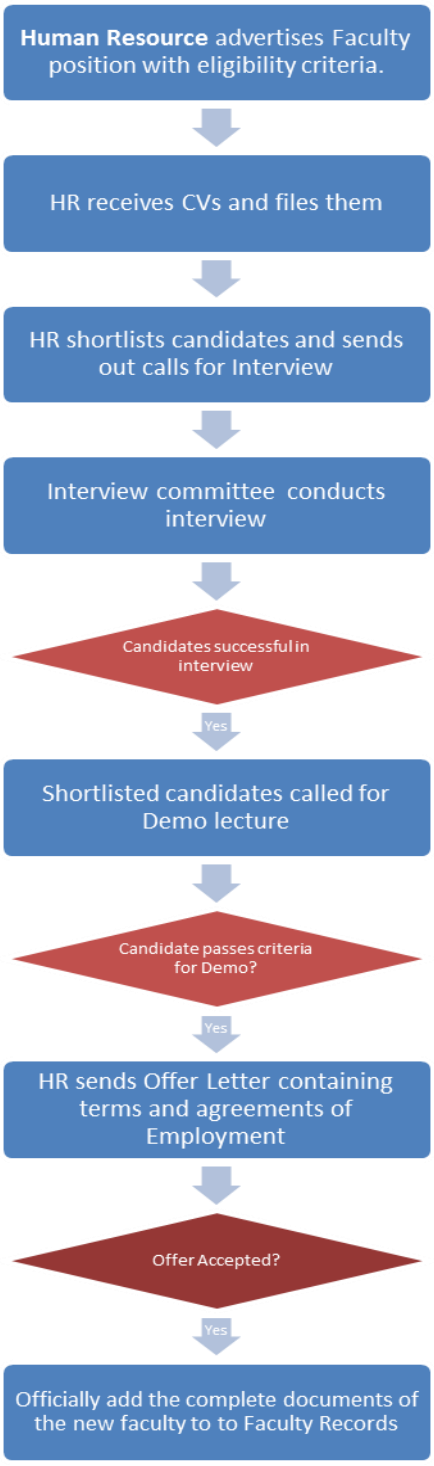

Figure 5.2

c. Indicate methods used to retain excellent faculty members

Faculty Retention Methods and Measures[19]

Academic committee will evaluate the faculty every semester with assistance of Human Resource department. If the evaluation of the faculty is satisfactory he/she will be confirmed as full time faculty.

SZABIST offers the following valuable intrinsic and extrinsic incentives and rewards for faculty retention:

a. Highly competitive salary packages.
b. Flexible working hours within a given work week.
c. Newly hired faculty is eligible for the Continuing Education once probationary period is completed.
d. While doing PhD under Continuing Education benefit, faculty may get promoted and salary may be revised.
e. Car Loan Financing
f. Provident Fund
g. Annual Bonus
h. Annual raise to counter inflationary effect.
i. Performance Increment policy
j. Capacity Development programs/ workshops
k. Fully funded trip for presenting own research paper at any Research Conference within Pakistan (once in a year).
l. Partially funded trip to an international research conference to present a research paper, (once in 3 years).
m. Health benefits
n. Publication honorarium,
o. Thesis and dissertation advisor / committee member honorarium and much more.

[19] Sources of information: Dean of Program, HR Department

d. Indicate how evaluation and promotion processes are in line with institution mission statement

The Faculty Evaluation and Promotion Process is duly in line with SZABIST's Mission Statement.

In order to support the mission, Dean/Head of department evaluate their faculty members annually. The faculty member is evaluated in terms of their teaching, student's feedback, research work, publications, arranging seminars/guest speaker sessions, attending conferences and other administrative work.

The evaluation results are used for promoting those faculty members, who are engaged in giving quality education and sharing industry's experience with the students to prepare them for competitive job industry.

The deserving faculty members also get merit increment and appreciation besides promotion. The faculty members who are well qualified but not able to achieve the goals assigned by the Dean/Head of the department are properly trained.

Hence, Evaluation process at SZABIST helps in promotion, appreciation, and training, proper counseling of faculty members to prepare them for producing high quality graduates nationally and internationally.

e. Indicate how frequently this process is evaluated and if the evaluation results are used to improve the process

Improvements in the Faculty Evaluation and Promotion Process

These are an outcome of the annual joint meeting of Executive Committee and the Human Resource Department. The Evaluations begin at the end of March and the procedure is well- established. Further improvements in the past year have been made in the official procedure.

Performance Appraisal Forms have been amended. Moreover, training of employees and appraisers is under considered by HR department for better understanding of evaluation criteria by all concerned. The faculty evaluations results are reviewed and the Executive Committee takes the final decision on promotions.

Standard 5-4: Effective Teaching and Learning Process

a. Describe the process and procedures used to ensure that teaching and delivery of course material is effective and focus on students learning

To improve their effectiveness, teachers need first to make their goals and objectives explicit and then to get specific, comprehensible feedback on the extent to which they are achieving those goals and objectives. All this is done via ZABDESK which is an online portal via which students and teacher interact.

SZABIST has state-of-the-art class rooms with all the modern medium of teaching facilities. Like computer, multimedia, white board, Internet facility etc.

All class rooms are air-conditioned and equipped with overhead projectors. Class size is from 15-30 students, which allows the delivery of high quality education on an interactive basis. The teachers' pay individual attention and encourage participation and constructive discussion.

Course related interactive lectures are regularly augmented by co-curricular activities such as:

i. Surprise tests
ii. Class activity
iii. Live projects
iv. Guest speaker sessions
v. Workshops
vi. Group assignments

b. Indicate how frequently this process is evaluated and if the evaluation results are used to improve the process.

Classroom Assessment focuses the primary attention of teachers and students on observing and improving learning, rather than on observing and improving teaching

Experienced faculty members mentor new teachers so that they can deliver well during the class. The program manager is also there to facilitate the teachers as well as students. Teachers are oriented about the rules and policy changes if any at the start of each semester and are provided guidelines.

Every semester in the 5th week all the faculty members are evaluated by the students for their methods of teaching and delivery of course material.

The Vice President Academics gives his comments on all the evaluations and then forwards them to relevant the Program Managers.

If a faculty member scores less the 60% in the evaluation, the Program Mangers informs him/her about the scores and allots time for improvement. After two weeks they are reevaluated, unless the score is improved, their case is taken to the Vice President Academics and his verdict stands.

Standard 5-5: Program Requirements Completion Process

i. Describe the procedure used to ensure that graduates meet the program requirements

Minimum GPA to graduate is 3.00 for PhD-CS.

PhD-CS Program	Requirement for Completion of Degree
PhD-CS 48 credit hours	• Duration of PhD-CS is 3 years • Course work of 18 credits (6 courses) is needed which includes core courses, electives and independent study. • Dissertation (30 credits) • Max duration to complete this degree is 7 years

Table 5.1: Requirement for Completion of Degree

One year is the maximum time allowed to a student for improving grades after completion of course work. The maximum time allowed to complete the Doctorate program is 7 years. Without completing all degree requirements, including, clearance of financial dues, completing the required courses, independent research and Dissertation, the degree is not awarded.

ii. Describe when this procedure is evaluated and whether the results of this evaluation are used to improve the process

Periodic Evaluation of above Procedure and its Improvement

The monthly **Academic Heads** meeting, the bi-annual **Academic Council** meeting and the bi- annual meeting of the newly formed **Board of Studies,** regularly discuss, evaluate the procedures that ensure completion of degree program requirements. These discussions lead to improvements and amendments in the processes and procedures.

Criterion 6: Faculty

Standard 6-1	***Program Faculty Qualifications and Number***
Standard 6-2	***Current Faculty, Scholarly Activities & Development***
Standard 6-3	***Faculty Motivation and Job Satisfaction***

Criterion 6: Faculty

Standard 6-1: Faculty Qualifications and Number

a. Faculty resumes in accordance with the format in Appendix B of the Self-Assessment Manual

Launched

b. Faculty Distribution by Program Areas

Program area of specialization	Courses in the area and average number of sections per	Number of faculty members in each area		Number of faculty with Ph.D. degree	
		Permanent	Adjunct	Permanent	Adjunct
Computing	5 courses / 1 section	16	4	4	1

Table 6.1: Faculty distribution by program's areas[20]

Standard 6-2: Current Faculty, Scholarly Activities and Development

a. Describe the criteria for faculty to be deemed current

The criteria for the faculty to be current:

1. Use current contents for teaching
2. Show involvement in the professional activities taking place in the campus
3. Participating in academic events like seminars / sessions
4. Participating in academic and industry conferences / workshops
5. Presenting and publishing papers in conferences
6. Publishing research papers in local and international journals
7. Publishing articles in newspapers and magazines
8. Conducting trainings and workshops
9. Supervising research at bachelors and masters level
10. Pursuing further education in their specialized field
11. Incorporating their research and otherwise learning into their teaching through content and methodology

[20] Table 6.1 of PT Report is Table 4.6 (Faculty Distribution by Program's Areas) of AT Report

b. Describe the means for ensuring that full time faculty members have sufficient time for scholarly and professional development.

SZABIST creates time and space for faculty to concentrate on priority faculty duties, to better integrate their competing faculty roles of teaching, scholarship, and service, and to achieve greater balance in their personal and professional lives. For professional development purposes, full time faculty members are eligible to enroll in Postgraduate programs free of charge. Additionally, faculty members are encouraged to actively participate in research activities through incentive of reduced teaching load.

c. Describe existing faculty development programs at the departmental and university level. Demonstrate their effectiveness in achieving faculty development.

- For professional development purposes, full time faculty members are eligible to enroll in Postgraduate programs free of charge. Additionally, faculty members are encouraged to actively participate in research activities through incentive of reduced teaching load.
- Faculty is permitted to go on "study-leaves" overseas to attain scholarship in their respective discipline.
- Additionally, faculty is nominated to attend seminars and workshops routinely held within Karachi city and nationally to update and enhance their knowledge in their core teaching areas.

d. Indicate how frequently faculty programs are evaluated and if the evaluation results are used for improvement.[21]

Every month an academic heads meeting involving Deans/Head of Departments and coordinators of all programs is held, this meeting is presided by Vice President (Academics). Additionally, regular meetings are scheduled between faculty, program coordinator and Head of Department to address any academic and administrative issues, thereby ensuring smooth running of the program. Furthermore, for each course faculty evaluation is carried out using students' feedback and in light of this feedback coordinator interacts with faculty to optimize student's learning experience.

Standard 6-3: Faculty Motivation and Job Satisfaction

a. Describe programs and processes in place for faculty motivation.

The following elements are routinely incorporated to measure faculty motivation:

- Cordial working environment

[21] Source: Human Resources Department

- Flexible faculty timings
- Annual and casual leaves
- Performance-based increment and annual bonus
- Loan facility
- Continuing Education
- Annual picnics and social gatherings

b. Indicate how effective these programs are

Programs are effective as:

- Employees get the opportunity of personal and professional growth by acquiring education free of cost.
- The 50% concession of fee to children of employees gives employees the opportunity to provide their children with quality education at an affordable price.
- The flexible timing enables the employees to manage their time on campus with the time of their classes.
- The performance based increments and annual bonuses motivate employees to work effectively and efficiently.

c. Obtain faculty input using faculty survey on programs for faculty motivation and job satisfaction

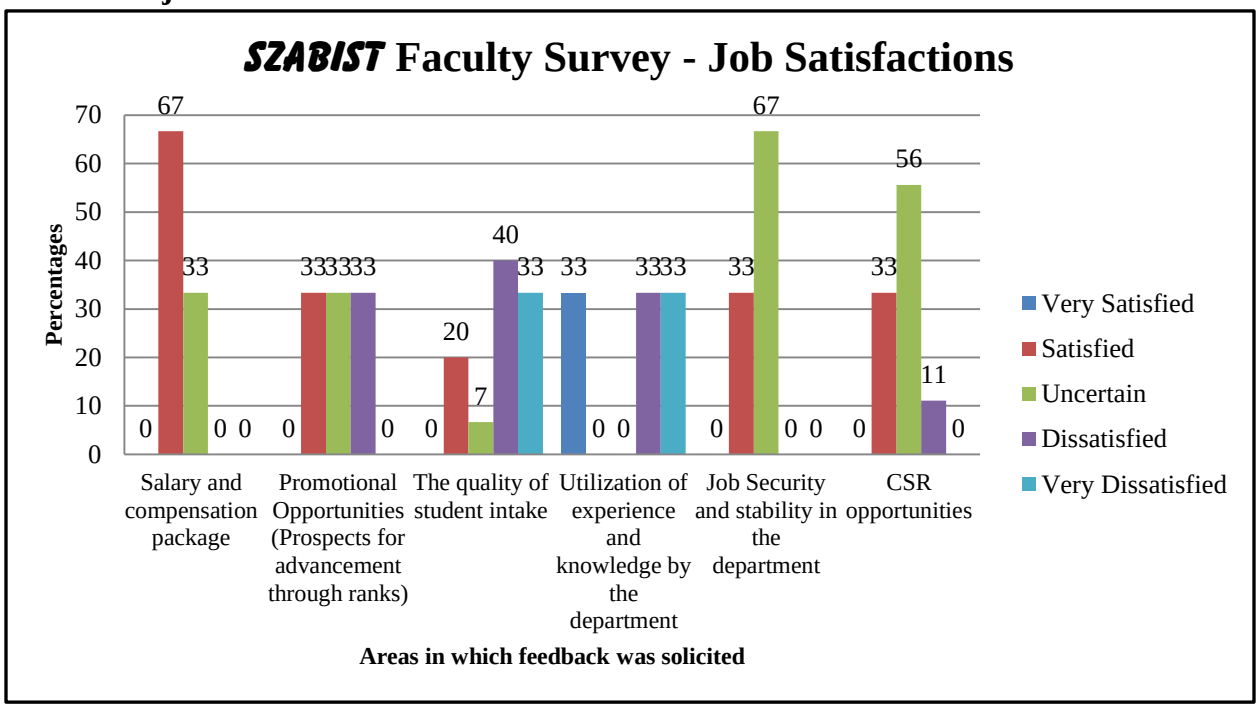

Figure 6.1

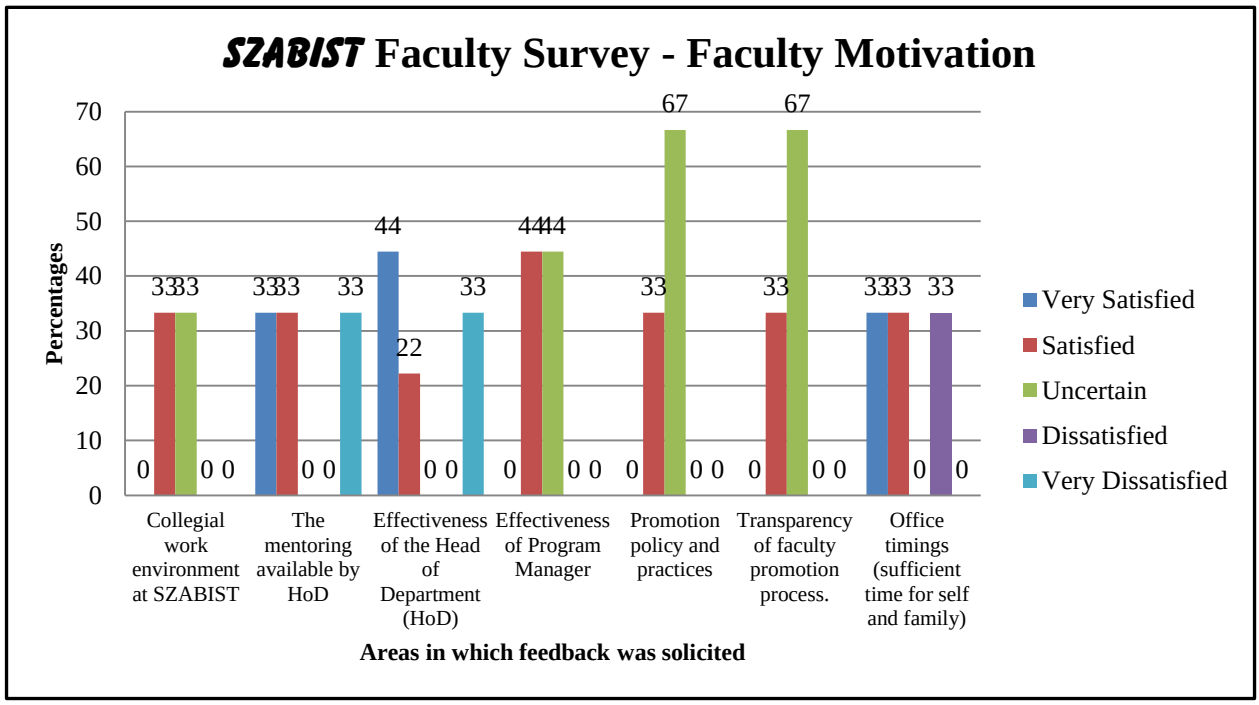

Figure 6.2

Criterion 7: Institutional Facilities

Standard 7-1	***New Trends in Learning (e.g. E-Learning)***
Standard 7-2	***Library Collections & Staff***
Standard 7-3	***Class-rooms & Offices Adequacy***

Criterion 7: Institutional Facilities

Standard 7-1: New Trends in Learning

a. Describe infrastructure and facilities that support new trends in learning[22]

E-learning infrastructure is in place and we have robust program of E-learning and intend to continue E-learning in future.

No.	Particulars	Quantity
1	Servers	16
2	Desktop Computers	296
3	Video Conferencing Equipment	1
4	Color Scanners	3
5	Printers	8
6	Multimedia Projectors	29
7	Local Area Network with 250+ nodes, CISCO 2600 Series Routers, CISCO 2950 series of switches, Laser Printers, Color Printers, Finger Print Devices, Multimedia Equipment and a rich Software Library.	

Table 7.1: Support Facilities

b. Indicate how adequate the facilities are

We have state-of-the-art facilities at our campus to meet present and future demand Online University:

Application server

Intel Xeon dual processor 3.0 GHz, 2GB ECC RAM, 72GB HDD, RAID controller 0 and 1, DVD multi-burner for data backup. Installed Windows server 2003 as an operating system with e-learning application software for student and faculty access through the Internet.

Storage server

Intel Xeon dual processor 3.0 GHz, 2GB ECC RAM, 216GB HDD, RAID controller 0, 1 and 5 for data storage, and DVD multi-burner for data backup. Installed Windows Server 2003, which is running data storage applications for students and faculty records.

Both machines are rack mounted and installed with Pix-Security firewall to secure the e-learning application software for reliable access to all users.

[22] The source of information is IT Department.

Standard 7-2: Library Collection and Staff[23]

a. Describe the adequacy of Library's technical collection

SZABIST library is equipped with ZABLIS, the most modern library automated system. It contains a rich collection of books, research projects / papers, thesis and dissertations. The library subscribes to a number of journals and magazines to update students' knowledge on current development taking place nationally and internationally. Currently, SZABIST has a total of 13,528 physical books / reports/ thesis, etc. In addition to this, SZABIST also has a collection of 4,300 e-books in e-library and a total of 8,242 on-line journals.

The library is also linked to full-text online academic journals through the HEC digital library access. In addition, the library subscribes to a number of Digital on-line libraries (EBSCOHOST, IEEE, and ACM) through which students can access an unlimited number of journals and magazines.

Library Resources			
No.	**Particulars**	**Quantity**	
1	**Printed Form**		
	A. Computer Sciences Books	**2,869**	
	B. Reports	**278**	
	i. Independent Study		242
	ii. Project		0
	iii. Thesis		34
	iii. Dissertation (PhD)		2
	C. Journal/Magazines (Subscribed)	**50**	
	D. Newspapers (Daily)	**10**	
2	**Digital Form**		
	A. E-Books	**4,300**	
	B. CD's	**734**	
	i. Books Related		
	ii. General		
	C. Audio/Video Cassettes	**0**	
	D. Journal/Magazines (Online)	**8,242**	
	E. Access to Online Journals		
	I. HEC Digital Library	**Yes**	
	• ***ASTM***	**Yes**	
	• ***EBRARY***	**Yes**	
	• ***IET Digital library***	**Yes**	

[23] The source of information is Librarian.

	• ***Institute for operations research and the management sciences***	**Yes**	
	• ***McGraw Hill Collections***	**Yes**	
	• ***Project Muse***	**Yes**	
	• ***Springer link***	**Yes**	
	• ***World bank e-library***	**Yes**	
	• ***Wiley-Blackwell journals***	**Yes**	
	• ***University of Chicago Press***	**Yes**	
	II. EBSCOHOST	**Yes**	
	III. ACM Library	**Yes**	
	IV. Emerald insight	**Yes**	
	V. JSTOR	**Yes**	
	VI. Taylor & Francis Journals	**Yes**	
	VII. Open Access	**Yes**	

Table 7.2: Library Resources

b. Describe the support rendered by the Library

Following are the ways in which the library staff supports the faculty and students

i. Respond to daily-on-site reissue requests for books.

ii. Train library users to effectively search the Library catalogue, Internet and other electronic resources.

iii. Book and other reading material lending services

iv. Receiving and persevering all reading material

v. Information access in digital form

vi. To search newly available books in market and on internet and make a list of required ones'.

Library Staff Timing

Shifts	Timeslots	Personnel (s)
Morning	8:00 a.m. -- 4:00 p.m.	6
Evening	2:00 p.m. -- 10:00 p.m.	4

Table 7.3: Library Staff Timing

Standard 7-3: Classroom and Office Adequacy[24]

a. Describe the adequacy of the class rooms

Class rooms are well equipped with

i. Multimedia projectors,
ii. PCs' with internet connections,
iii. Sound systems
iv. Uninterruptible Power Supply (UPS)
v. Air Conditioners/ Fans,
vi. Surveillance Cameras
vii. Chairs,
viii. Rostrums,
ix. White Board,
x. Pc Trollies,
xi. Tube Lights,
xii. Blinds,
xiii. Wall Clocks and

Other necessary stationeries and things that are required by faculty members that add value in teaching.

b. Describe the adequacy of faculty offices

Rooms are allocated for permanent and visiting faculties where latest Intel Core, i3, i5 and i7 PCs are available with full Internet facilities, printers, landline extensions, Wi-Fi, digital library access, split air conditioners, shelves, UPS, display boards to display their office schedules, and other necessary stationeries and equipment. It is essential for all the faculty members to display their semester schedule on their doors to inform students of the faculty's availability.

[24] The sources of information are Student handbook and Prospectus.

Criterion 8: Institutional Support

Standard 8-1	***Support and Financial Resources***
Standard 8-2	***Number and Quality of GSs, Students***
Standard 8-3	***Financial Support for Library and Computing Facilities***

Criterion 8: Institutional Support

Standard 8-1: Support and Financial Resources[25]

a. Describe how your program meets this standard. If it does not explain the main causes and plans to rectify the situation

Permanent faculty is being hired on handsome salary package, which includes basic salary, conveyance medical and house rent allowance.

On annual basis around 10 to 15 percent on basic salary increment is being added and after every year a bonus is awarded to every employee in the month of March.

Also on semester/Annual progress report and recommendation on excellent work or achievement for SZABIST, salary is increased or some award in the shape of money is awarded to him or her.

After three years of successful teaching in SZABIST, loan facility can also be used by the faculty.

After the completion of the permanent faculty probation period (i.e. 6 months), SZABIST offers them to continue with their higher studies according to their needs without any payment but they have to sign an agreement to serve the institution for five years after completion of their respective degree.

b. Describe the level of adequacy of secretarial support, technical staff and office equipment[26]

There are 18 dedicated academic staff members who provide secretarial and technical support to the Management Science department. The support includes:

- Class Management
- Attendance Sheet Circulation
- Time Table Maintenance
- Schedule Circulation
- Notification Circulation to both students and faculty members about classes, seminars, workshops and the like.

Rooms are allocated for permanent and visiting faculties where latest Intel Core to i7 PCs are available with full internet facilities, Wi-Fi, printers, digital library access, landline extensions, split air conditioners, UPS, shelves display boards to display their objectives and schedules, and other necessary stationeries and equipment. Moreover, it is essential for all the

[25] The sources of information are HR Department, and Vice President (Academics). For further details please see section 5-3 and 6-3.
[26] The Source of information is Academic Staff

faculty members to display their semester schedule on their doors for students' consultation and faculty's availability.

Standard 8-2: Number and Quality of GSs, RAs and PhD Students[27]

a. Provide the number of graduate students for the last three years

Number of Graduate Students

Year	No. of Graduates
2015	**1**

Table 8.1: Number of Graduate Students

b. Provide the faculty: graduate student ratio for the last three years

Graduates: Faculty Ratio*

Year	Graduates: Fulltime Faculty Ratio
2015	0.6:1

Table 8.2: Graduate Faculty Ratio

Number of Faculty

Particulars	Faculty
	2015
Total Number of Faculty	**5**
Full Time faculty	4
Adjunct Faculty**,***	1

Table 8.3: Number of Faculty

* Graduates / Faculty of PhD-CS program only

** 3 Adjunct faculty is equal to 1 permanent faculty

*** Adjunct faculty has been counted as per person not according to number of courses taught by them

[27] The sources of information are ZABDESK and HR Department.

Standard 8-3 Financial Support for Library and Computing Facilities[28]

a. Describe the resources available for the library

Particulars	Budgetary Allocation (Rupees)		
	2012-2013	2013-2014	2014-2015
Library	321,000	345,500	433,900

Table 8.4: Resources available for the library

b. Describe the resources available for laboratories.

Particulars	Budgetary Allocation (Rupees)		
	2012-2013	2013-2014	2014-2015
Laboratories	1,870,000	1,690,000	4,417,400

Table 8.5: Resources available for the laboratories

c. Describe the resources available for computing facilities.

Particulars	Budgetary Allocation (Rupees)		
	2012-2013	2013-2014	2014-2015
Computing Facilities	977,000	975,000	1,378,950

Table 8.6: Resources available for computing facilities

[28] The sources of information are ZABDESK and HR Department.

Appendix

PhD (Computing) The PhD program requires students to complete 48 credit hours. Course work of 18 credits (6 courses) is needed which includes core courses, electives and independent study. Dissertation of 30 credits is also required to complete. The maximum time limit to complete the PhD degree is 7 years.

First Year

Fall Semester

CSC 6101 Research Methodology

CSC 6xxx Elective-I

CSC 6xxx Elective-II

Spring Semester

CSC 6xxx Independent Study

CSC 6xxx Elective-III

CSC 6xxx Elective-IV

Second Year

Fall Semester

CSC 6xxx Dissertation

Spring Semester

CSC 6xxx Dissertation

Third Year

Fall Semester

CSC 6xxx Dissertation

Spring Semester

CSC 6xxx Dissertation

Elective courses are listed under the MS Computer Science program.

Followed by successfully completion of the course work, Comprehensive Examination is required to pass to acquire PhD Candidacy, after which research period starts. The entire research work is carried out under the supervision of the PhD supervisor, which is assigned and approved as per the university procedure. The complete research work is required to be submitted in the form of a "Dissertation", after a minimum period of two years.

PhD course work credits may be implemented via selection of a particular mode of course execution (as recommended by the respective Graduate

Committee/Program Manager) from the various available approaches, including guided/taught courses, seminars, and independent research studies.

SHAHEED ZULFIKAR ALI BHUTTO
INSTITUTE OF SCIENCE AND TECHNOLOGY

SZABIST

SELF-ASSESSMENT REPORT

PhD - Computing (48 Credit Hours)

Program Self-Assessment Checklist

SHAHEED ZULFIKAR ALI BHUTTO
INSTITUTE OF SCIENCE AND TECHNOLOGY

SZABIST

Guidelines for Program Team Report and QEC Review

Program: PhD - Computing (48 Credit Hours)

Prepared by QEC Staff:

Ms. Riffat Mughal

SHAHEED ZULFIKAR ALI BHUTTO
INSTITUTE OF SCIENCE AND TECHNOLOGY

PROGRAM SELF ASSESSMENT CHECKLIST

The following is a summary checklist of the main criteria and the associated standards that need to be addressed in the program self-assessment report.

CRITERIA AND ASSOCIATED STANDARDS		Yes/No	Issue/Observation	Possible Evidences
Criterion 1- Program Mission, Objectives, and Outcomes				
Standard 1-1	Program Measurable Objectives			
	a. Document institution, department, and program mission statements	✓		
	b. State program objectives	✓		
	c. State program outcomes	✓		
	d. Describe how each objective is aligned with program, college, and institution mission statements	✓		
	e. Outline the main elements of the strategic plan to achieve the program mission and objectives	✓		
	f. Table 4.1 program objectives assessment	✓		
	Please find sample of Table 4.1 attached in Annexure I (i-ii)			
Standard 1-2	Program Outcomes			
	a. Table 4.2 outcomes versus objectives **Please find example of Table 4.2 attached in Annexure II (iii)**	✓		
	b. Employer survey	✓		
	c. Alumni survey	✓		
	d. Graduating student's survey	✓		
Standard 1-3	Assessment Results And Improvement Plans			
	a. Describe the action taken on based on the periodic assessments	✓		
	b. Describe major future program improvement plans based on recent assessments	✓		
	c. List strengths and weaknesses of the programs	✓		
	d. List significant future plans for the program	✓		

Standard 1- 4	Overall Performance Using Quantifiable Measures			
	a. Indicate the CGPA of successful students per semester, time required to complete the program, drop out ratio of students per semester (of the last 3 yrs) **Please find example attached in Annexure III (pg iv)**	✓		
	b. Indicate the percentage of employers that are strongly satisfied with the performance of the department's graduates. Use Employer's survey.	✓		
	c. Percentage of Student Evaluation/Assessment results for all the courses and faculty. Use Teacher Evaluation Results.	✓		
	d. Percentage/List/Number of research activities i.e. journal publications, funded projects, conference publications per faculty and per year, and the faculty awarded excellence in research **Please find example attached in Annexure III (pg iv)**	✓		
	e. Number of short courses workshops, seminars organized on community service level **Please find example attached in Annexure III (pg iv)**	✓		
	f. Faculty and student surveys results to measure the administrative services provided	✓		
Criterion 2 – Curriculum Design And Organization				
	Courses detailed outline as in item E criterion 2 of the Self-Assessment Manual			
Standard 2-1	Courses Vs. Objectives			
	a. Title of Degree Program	✓		
	b. Definition of Credit Hour	✓		
	c. Degree Plan: Attach a flow chart showing pre-requisites, core, and elective courses. **Please find example attached in Annexure IV (pg v-ix)**	✓		
	d. Table 4.3 curriculum course requirement **Please find example attached in Annexure IV (pg v-ix)**	✓		
	e. Describe how the program content (courses) meets the program Objectives.	✓		

	f. Table 4.4 Courses versus Outcomes. List the courses and tick against relevant outcomes. **Please find example attached in Annexure IV(pg v-ix)**	✓		
Standard 2-2	Theory, Problem Analysis/ Solution and Design in Program			
	a. Table 4.5 Standard 2-2 requirements	✓		
Standard 2-3	Mathematics & Basic Sciences Requirements			
	a. Address standards 2-3, 2-4, and 2-5 using information required in Table 4.4	✓		
Standard 2-4	Major Requirements as Specified by Accreditation Body	✓		
Standard 2-5	Humanities. Social Sciences, Arts, Ethical. Professional & Other Requirements			
	a. List the courses required by the Accreditation Body.	✓		
Standard 2-6	Information Technology Content Integration Throughout the Program			
	a. List the courses required by the Accreditation Body.	✓		
	b. Describe how they are applied and integrated throughout the program	✓		
Standard 2-7	Communication Skills (Oral & Written)			
	a. List the courses required by the Accreditation Body.	✓		
	b. Describe how they are applied in the program.	✓		
Criterion 3 – Laboratories and Computing Facilities				
Standard 3- 1	Lab Manuals / Documentation / Instructions			
	a. Explain how students and faculty have adequate and timely access to the manuals/documentation and instructions	✓		
	b. Are the resources available sufficient for the program?	✓		
Standard 3- 2	Adequate Support Personnel for Labs			
	Indicate for each laboratory, support personnel, level of support, nature and extent of instructional support. **Please find example attached in Annexure V(pg x)**	✓		

Standard 3- 3	Adequate Computing Infrastructure and Facilities	✓		
	a. Describe how the computing facilities support the computing component of your program	✓		
	b. Are there any shortcomings in the computing infrastructure and facilities?	✓		
Criterion 4 – Student Support and Advising				
Standard 4-1	Sufficient Frequency of Course Offering			
	a. Provide the department's strategy for course offerings	✓		
	b. Explain how often core courses are offered.	✓		
	c. Explain how often elective courses are offered.	✓		
	d. Explain how required courses outside the department are managed to be offered in sufficient number and frequency	✓		
Standard 4-2	Effective Faculty / Student Interaction			
	Describe how you achieve effective student/faculty interaction in courses taught by one or more than one person; such as two faculty members, a faculty member, and a teaching assistant or a lecturer	✓		
Standard 4-3	Professional Advising and Counseling			
	a. Describe how students are informed about program requirements	✓		
	b. Describe the advising system and indicate how its effectiveness is measured	✓		
	c. Describe the student counseling system and how students get professional counseling when needed	✓		
	d. Indicate if students have access to professional counseling; when necessary	✓		
	e. Describe opportunities available for students to interact with practitioners, and to have membership in technical and professional societies	✓		
Criterion 5 – Process Control				
Standard 5-1	Admission Process			
	a. Describe the program admission criteria at the institutional level, faculty or department if applicable.	✓		

	b. Make a Flowchart **Please find example attached in Annexure VI (pg xi-xii)**	✓		
	c. Describe policy regarding program/credit transfer	✓		
	d. Indicate how frequently the admission criteria are evaluated and if the evaluated results are used to improve the process	✓		
Standard 5-2	Registration and Students			
	a. Describe how students are registered in the program	✓		
	b. Describe how students' academic progress is monitored and how their program of study is verified to adhere to the degree requirements	✓		
	c. Indicate how frequently the process of registration and monitoring are evaluated and if the evaluation results are used to improve the process	✓		
Standard 5-3	Faculty Recruitment and Retention Process			
	a. Describe the process used to ensure that highly qualified faculty is recruited to the program.	✓		
	b. Make a Flowchart **Please find example attached in Annexure VI (pg xi-xii)**	✓		
	c. Indicate methods used to retain excellent faculty members	✓		
	d. Indicate how evaluation and promotion processes are in line with institution mission statement	✓		
	e. Indicate how frequently this process is evaluated and if the evaluation results are used to improve the process	✓		
Standard 5-4	Effective Teaching and Learning Process			
	a. Describe the process and procedures used to ensure that teaching and delivery of course material is effective and focus on students learning	✓		
	b. Indicate how frequently this process is evaluated and if the evaluation results are used to improve the process	✓		
Standard 5-5	Program Requirements Completion Process			
	a. Describe the procedure used to ensure	✓		

	that graduates meet the program requirements			
	b. Describe when this procedure is evaluated and whether the results of this evaluation are used to improve the process	✓		
Criterion 6 – Faculty				
Standard 6-1	Program Faculty Qualifications and Number			
	a. Faculty resumes in accordance with the format	Launched		
	b. Table 4.6 faculty distribution by program's areas **Please find example attached in Annexure VII (pg xiii)**	✓		
Standard 6-2	Current Faculty, Scholarly Activities & Development			
	a. Describe the criteria for faculty to be deemed current (updated in the field) in the discipline and based on these criteria and information in the faculty member's resumes, what percentage of them is current. The criteria should be developed by the department	✓		
	b. Describe the means for ensuring that full time faculty members have sufficient time for scholarly and professional development	✓		
	c. Describe existing faculty development programs at the departmental and university level. Demonstrate their effectiveness in achieving faculty development	✓		
	d. Indicate how frequently faculty programs are evaluated and if the evaluation results are used for improvement	✓		
Standard 6-3	Faculty Motivation and Job Satisfaction			
	a. Describe programs and processes in place for faculty motivation	✓		
	b. Indicate how effective these programs are	✓		
	c. Obtain faculty input using faculty survey (Appendix C) on programs for faculty motivation and job satisfaction	✓		

Criterion 7 – Institutional Facilities				
Standard 7-1	New Trends in Learning (e.g. E-Learning)			
	a. Describe infrastructure and facilities that support new trends in learning	✓		
	b. Indicate how adequate the facilities are	✓		
Standard 7-2	Library Collections & Staff			
	a. Describe the adequacy of library's technical collection	✓		
	b. Describe the support rendered by the library	✓		
Standard 7-3	Class-rooms & Offices Adequacy			
	a. Describe the adequacy of the classrooms	✓		
	b. Describe the adequacy of faculty offices	✓		
	Please find examples of Criterion 7 attached in Annexure VIII (pg xiv-xvi)			
Criterion 8 – Institutional Support				
Standard 8-1	Support and Financial Resources			
	a. Describe how your program meets this standard. If it does not explain the main causes and plans to rectify the situation	✓		
	b. Describe the level of adequacy of secretarial support, technical staff and office equipment	✓		
Standard 8-2	Number and Quality of GSs, RAs and Ph.D. Students			
	a. Provide the number of graduate students, research assistants and Ph.D. students for the last three years	✓		
	b. Provide the faculty: graduate student ratio for the last three years	✓		
Standard 8-3	Financial Support for Library and Computing Facilities			
	a. Describe the resources available for the library	✓		
	b. Describe the resources available for laboratories	✓		
	c. Describe the resources available for computing facilities	✓		
	Please find examples of Criterion 8 attached in Annexure IX (pg xvii-xix)			

***Key**

✓ - Yes X- No NA- Not Applicable

SHAHEED ZULFIKAR ALI BHUTTO
INSTITUTE OF SCIENCE AND TECHNOLOGY

SZABIST

SELF-ASSESSMENT REPORT

PhD - Computing (48 Credit Hours)

Assessment Team Report

SHAHEED ZULFIKAR ALI BHUTTO
INSTITUTE OF SCIENCE AND TECHNOLOGY

SZABIST

ASSESSMENT TEAM REPORT

PhD - Computing (48 Credit Hours)

Spring 2016

SHAHEED ZULFIKAR ALI BHUTTO
INSTITUTE OF SCIENCE AND TECHNOLOGY

Assessment Team Report

The AT report is comprised of the following:

A. Review Report
B. Assessment Results Implementation Plan Summary
C. Criteria Referenced (Rubric) Evaluation of SAR

A. The Review Report

1. Names of Assessment Team Members

i. Dr Zaki Rashidi
ii. Dr Faraz Junejo
iii. Mr Adeel Ahmed

2. Date of Nomination

30th May 2016

3. Assessment duration (e.g. 7 days or 10 days)

Twenty Two (22) days

4. Name of Department and Program being assessed

Department of Computer Sciences and Doctor of Philosophy in Computing Program

5. Shortcomings of the PT report

The PT report has various shortcomings. The details are attached in a separate documents and various comments are given on the report.

6. Comments on:

i. Relevance and the comprehensiveness of the responses to criteria / standards given in the SA Manual

The report covers all the standards and criteria as per SA manual. No portion is left over or incomplete; however, several portions lacks understanding of the questions / details required.

ii. Authenticity of the information / data provided in the report

The information, survey data, student, faculty, and alumni information is correct and it is verified from the sources mentioned in the report and otherwise.

iii. Adequacy of the summaries / conclusions drawn by PT on the basis of various feedbacks / surveys

Findings and conclusions are not drawn explicitly on the basis of the data. The report contains only fact findings. The data of feedback is also reported without any specific conclusion.

iv. Observations made during the assessment

Several observations are made during the assessment, a brief is given below:

1. Program objectives are not measureable nor properly aligned with the outcomes, mission, and curricula
2. Program Assessment results and improvement plans are not properly articulated.
3. Role of BASR / Research Committee / Doctoral Committee is not reflected anywhere
4. Various information either is old or nor relevant

Note: Further details are given in the observation document attached in Annex. A

v. Strengths and weaknesses of the Program

The strengths of the program are:

- Foreign qualified faculty
- Small class size
- Diverse curriculum
- Infrastructure

Weaknesses

- Access to digital resources
- Delays in MS / PhD processes
- Lacking of faculty development plan
- Lacking strong research culture
- Holding PhD specific activities / workshop
- Lacking of joint quality publications of the faculty and students
- Low faculty motivation

7. Date of the presentation of AT report in the exit meeting

11th July, 2016

B. Criteria Referenced (Rubric) Evaluation of SAR

CRITERIA REFERENCED SELF ASSESSMENT – METHODOLOGY AND EVALUATION TOOL

Scoring of Criterion Items

1. Key areas of each criterion are to be scored normally by considering the approach taken by the university and the results achieved. Maximum score for each items is 5 and the minimum is 1. The visiting team is required to award the score by encircling one of the entries against each item. The total of the encircled values (TV) for each criterion will be determined and normalized in percentages. Each criterion has a weight allocated to it. Scores pertaining to a particular criterion will be the product of TV and its weightage. Following are the guidelines to be used to awarding score to each key area.

Result	**Score**
Poor performance in most of the areas.	1
Fair performance in most of the areas.	2
Good performance for most areas. No poor performance in any areas.	3
Good to excellent performance in all areas.	4
Excellent performance in most of the areas.	5

Criteria Referenced Self-Assessment – Methodology and Evaluation Tool

Criterion 1 – Program Mission, Objectives and Outcomes		**Weight = 0.05**				
Factors		**Score**				
1	Does the Program have documented measureable objectives that support faculty / college and institution mission statements?	5	4	**3**	2	1
2	Does the Program have documented outcomes for graduating students?	5	4	**3**	2	1
3	Do these outcomes support the Program objectives?	5	4	3	2	**1**
4	Are the graduating students capable of performing these outcomes?	5	4	**3**	2	1
5	Does the department assess its overall performance periodically using quantifiable measures?	5	4	3	2	**1**
6	Is the result of the Program Assessment documented?	5	4	3	2	**1**
	Total Encircled Value (TV)	**12**				
Score 1 **(S1) = [TV/(No. of Questions *5)] *100 *Weight**		**2**				

Criterion 2 – Curriculum Design and Organization		**Weight = 0.20**				
Factors		**Score**				
1	Is the curriculum consistent?	**5**	4	3	2	1
2	Does the department assess its overall performance periodically using quantifiable	5	4	3	2	**1**
3	Are theoretical background, problem analysis and solution design stressed within the program's core material?	5	**4**	3	2	1
4	Does the curriculum satisfy the core requirements laid down by respective accreditation bodies?	5	**4**	3	2	1
5	Does the curriculum satisfy the major requirements laid down by HEC and the respective councils / accreditation bodies?	**5**	4	3	2	1
6	Does the curriculum satisfy the professional requirements as laid down by Accreditation Body?	**5**	4	3	2	1
7	Is the information technology component integrated throughout the program?	**5**	4	3	2	1
8	Are oral and written skills of the students developed and applied in the program?	5	4	3	**2**	**1**
	Total Encircled Value (TV)	**30**				
Score 2 **(S2) = [TV/(No. of Questions *5)] *100 *Weight**		**15**				

Criterion 3 – Laboratories and Computing Facilities		**Weight = 0.10**				
Factors		**Score**				
1	Are laboratory manuals / documentation / instructions etc. for experiments available and readily accessible to faculty and students?	5	4	3	2	1
2	Are there adequate number of support personnel for instruction and maintaining the laboratories?	5	4	3	2	1
3	Are the university's infrastructure and facilities adequate to support the program objectives?	5	4	3	2	1
	Total Encircled Value (TV)	**13**				
	Score 3 **(S3) = [TV/(No. of Questions *5)] *100 *Weight**	**8.67**				
Criterion 4 – Student Support and Advising		**Weight = 0.10**				
Factors		**Score**				
1	Are the courses being offered in sufficient frequency and number for the students to complete the program in a timely manner?	5	4	3	2	1
2	Are the courses in the major area structured to optimize interaction between the students, faculty and teaching assistants?	5	4	3	2	1
3	Does the university provide academic advising on course decisions and career choices to all students?	5	4	3	2	1
	Total Encircled Value (TV)	**13**				
	Score 4 **(S4) = [TV/(No. of Questions *5)] *100 *Weight**	**8.67**				
Criterion 5 – Process Control		**Weight = 0.15**				
Factors		**Score**				
1	Is the process to enroll students to a program based on quantitative and qualitative criteria?	5	4	3	2	1
2	Is the process above clearly documented and periodically evaluated to ensure that it is meeting its objectives?	5	4	3	2	1
3	Is the process to register students in the program and monitoring their progress documented?	5	4	3	2	1
4	Is the process above periodically evaluated to ensure that it is meeting its objectives?	5	4	3	2	1
5	Is the process to recruit and retain faculty in place and documented?	5	4	3	2	1
6	Are the processes for faculty evaluation & promotion consistent with the institution mission?	5	4	3	2	1
7	Are the processes in 5 and 6 above periodically evaluated to ensure that they are meeting their objectives?	5	4	3	2	1

8	Do the processes and procedures ensure that teaching and delivery of course material emphasize active learning and that course learning outcomes are met?	5	4	3	2	1
9	Is the process in 8 above periodically evaluated to ensure that it is meeting its objectives?	5	4	3	2	1
10	Is the process to ensure that graduates have completed the requirements of the program base on standards and documented procedures?	5	4	3	2	1
11	Is the process in 10 above periodically evaluated to ensure that it is meeting its objectives?	5	4	3	2	1
	Total Encircled Value (TV)	**36**				
	Score 5 **(S5) = [TV/(No. of Questions *5)] *100 *Weight**	**9.82**				
Criterion 6 – Faculty		**Weight = 0.15**				
Factors		**Score**				
1	Are there enough full time faculty members to provide adequate coverage of the program areas / courses with continuity and stability?	5	4	3	2	1
2	Are the qualifications and interests of faculty members sufficient to teach all courses, plan, modify and update courses and curricula?	5	4	3	2	1
3	Do the faculty members posses a level of competence that would be obtained through graduate work in the discipline?	5	4	3	2	1
4	Do the majority of faculty members hold a PhD degree in their discipline?	5	4	3	2	1
5	Do faculty members dedicate sufficient time to research to remain current in their disciplines?	5	4	3	2	1
6	Are there mechanisms in place for faculty development?	5	4	3	2	1
7	Are faculty members motivated and satisfied so as to excel in their profession?	5	4	3	2	1
	Total Encircled Value (TV)	**19**				
	Score 6 **(S6) = [TV/(No. of Questions *5)] *100 *Weight**	**8.14**				

Criterion 7 – Institutional Facilities						Weight = 0.15
Factors						**Score**
1	Does the institution have the infrastructure to support new trends such as e-learning?	5	4	3	2	1
2	Does the library contain technical collection relevant to the program and is it adequately staffed?	5	4	3	2	1
3	Are the class rooms and offices adequately equipped and capable of helping faculty carry out their responsibilities?	5	4	3	2	1
	Total Encircled Value (TV)			**11**		
	Score 7 **(S7) = [TV/(No. of Questions *5)] *100 *Weight**			**11**		

Criterion 8 – Institutional Support						Weight = 0.15
Factors						**Score**
1	Is there sufficient support and finances to attract and retain high quality faculty?	5	4	3	2	1
2	Are there an adequate number of high quality graduate students, teaching assistants and PhD students?	5	4	3	2	1
	Total Encircled Value (TV)			**6**		
	Score 8 **(S8) = [TV/(No. of Questions *5)] *100 *Weight**			**9**		

OVERALL ASSESSMENT SCORE = S1 + S2 + S3 + S4 + S5 + S6 + S7 + S8 + S9 + S10

= 72.29

C. Assessment Results Implementation Plan Summary PhD-Computing-Karachi Campus

AT Findings	Corrective Action	Implementation Date	Responsible Body	Resources Needed
1. The number of available digital library resources is found to be low digital resources	It is recommended that more relevant and necessary digital resources should be added to increase the library database	More digital library budget had been put up and approved in 2016-17 Tentative Dec 2016	Research Committee (Dr Zaki is looking in detail about the PERN and Digital Library Access)	None
2. Considerable delays have been observed in dissertation process of the program	It is suggested that special attention be paid to smooth out the PhD dissertation process	Formal BASR committee has been setup now. All issues regarding dissertation will speed up.	BASR	None
3. There is a lack of faculty development plan	It is suggested that a detailed faculty development plan should be prepared and implemented	SZABIST has a faculty education plan and also send faculty on training time to time. (already present)	Permission from VP Academics and HR Department	None
4. The number of PhD specific Seminars and Conferences	It is recommended that national/ international conference and other activities related to PhD Computing program should be held frequently	Formal BASR committee has been setup already. The BASR body will closely monitor the PhD Seminars and Conferences. (Already Present)	BASR and Academics to handle the logistics part	None
5. The assessment of the program revealed a weak research culture	It is suggested that research culture should be improved by amending course completion requirement accordingly.	Previously there were no BASR and Research Committee. Research Committee is actively looking into the research culture and proposed management their recommendation.	Research Committee	None

6. The quality of publications found to be low	It is suggested that a comprehensive publication plan should be made to enhance the quality of the same.	More digital library budget had been put up and approved in 2016-17 Dec 2016	Research Committee (Dr Zaki is looking in detail about the PERN and Digital Library Access)	None
7. The level of faculty motivation is on the lower side	It is recommended that faculty motivation should be enhanced through different means i.e. providing: medical benefit, reviewing research promotion policy and the like	Recommendations has already been given to Management in ACHEADS, BOS, research committee and BASR.	HR Department , Senior Management and Board of Trustees	None

President's Comments: The Self-Assessment process of PhD-Computing program has highlighted some areas of concerns and for improvement certain corrective actions are given. The recommendation given by Assessment Team's will improve the quality of the program and, enhance the overall experience of students. I appreciate the efforts rendered by the Program Team, Assessment Team and the staff of QEC for the preparation and completion of Self-Assessment Report of the PhD- Computing program.

Name and Signature:

Madame Shahnaz Wazir Ali

Dean's or HoD's Comments: The entire Self-Assessment process is very commendable. Further, the shortcomings identified above will be addressed and action will be taken with the support of relevant departments soon.

Name and Signature:

Dr. Imran Amin

QEC Comments: The successful completion of the Self-Assessment process of PhD-Computing program was a significant task, as the assessment highlighted areas of the program that require improvements. The IR/QEC staff is confident that the implementation of the corrective actions will amplify the market standing of the program and students' overall educational experience. The support of the Head of the Department, Program Manager, Program Team, Assessment Team and QEC staff is encouraged.

Name and Signature:

Ms. Faryal Shahabuddin

Ms. Mahwash Imran

SHAHEED ZULFIKAR ALI BHUTTO
INSTITUTE OF SCIENCE AND TECHNOLOGY

President's Comments: The Self-Assessment process of PhD-Computing program has highlighted some areas of concerns and for improvement certain corrective actions are given. The recommendation given by Assessment Team's will improve the quality of the program and, enhance the overall experience of students. I appreciate the efforts rendered by the Program Team, Assessment Team and the staff of QEC for the preparation and completion of Self-Assessment Report of the PhD- Computing program.

Name and Signature:

Madame Shahnaz Wazir Ali

Dean's or HoD's Comments: The entire Self-Assessment process is very commendable. Further, the shortcomings identified above will be addressed and action will be taken with the support of relevant departments soon.

Name and Signature:

Dr. Imran Amin

QEC Comments: The successful completion of the Self-Assessment process of PhD-Computing program was a significant task, as the assessment highlighted areas of the program that require improvements. The IR/QEC staff is confident that the implementation of the corrective actions will amplify the market standing of the program and students' overall educational experience. The support of the Head of the Department, Program Manager, Program Team, Assessment Team and QEC staff is encouraged.

Name and Signature:

Ms. Faryal Shahabuddin

Ms. Mahwash Imran

SHAHEED ZULFIKAR ALI BHUTTO
INSTITUTE OF SCIENCE AND TECHNOLOGY

SZABIST

SELF-ASSESSMENT REPORT

PhD - Computing (48 Credit Hours)

Program Team Registration Forms

SHAHEED ZULFIKAR ALI BHUTTO
INSTITUTE OF SCIENCE AND TECHNOLOGY
Karachi Campus

Registration Form

Program Team

Program Team of (Name of Department / Faculty): COMPUTER SCIENCE-PhD-CS

Team Leader: DR. SYED SAIFUR RAHMAN

Name: DR. SYED SAIFUR RAHMAN Position: ASSOCIATE PROFESSOR

Institution: SZABIST Contact No: (Office) _____

Mobile No: 03332350889 Email Address: saif.rahman@szabist.edu.pk

Role in Program Team:

Beside his / her own responsibilities, he/ she will also be responsible for the following:

- To attend the SAR meetings as and when required.
- To ensure that Self Assessment Mechanism is being implemented as per the given guidelines.
- To prepare drafts of the SAR on the given dead line and send them to QEC for timely feedback.
- To keep the record of all the supporting documents addressing various standards of the SAR.
- To circulate all the applicable feedback forms to the target stakeholders and include the analysis of the same in the SAR.
- To communicate with the management on the effectiveness and suitability of the Self Assessment Mechanism.

Declaration of the Program Team Member:

I am quite willing to be part of this team and assure that I would do my best to play my role in the working of Program Team.

_____ 29-3-2016

(Signature of PT Member) Date

Approved By: _____

(Head of the Department)

Note: Completed form should be sent to the QEC

SHAHEED ZULFIKAR ALI BHUTTO
INSTITUTE OF SCIENCE AND TECHNOLOGY
Karachi Campus

Registration Form

Program Team

Program Team of (Name of Department / Faculty): Computer Sciena - PhD-CS

Team Leader: Dr Saif Ur Rehman

Name: Zareen Sharf

Position: Assistant Professor

Institution: SZABIST

Contact No: (Office) _____

Mobile No: 03218231402

Email Address: zareen.sharf@szabist.edu.pk

Role in Program Team:

Beside his / her own responsibilities, he/ she will also be responsible for the following:

- To attend the SAR meetings as and when required.
- To ensure that Self Assessment Mechanism is being implemented as per the given guidelines.
- To prepare drafts of the SAR on the given dead line and send them to QEC for timely feedback.
- To keep the record of all the supporting documents addressing various standards of the SAR.
- To circulate all the applicable feedback forms to the target stakeholders and include the analysis of the same in the SAR.
- To communicate with the management on the effectiveness and suitability of the Self Assessment Mechanism.

Declaration of the Program Team Member:

I am quite willing to be part of this team and assure that I would do my best to play my role in the working of Program Team.

29/03/2016

(Signature of PT Member) Date

Approved By: _____

(Head of the Department)

Note: Completed form should be sent to the QEC

SHAHEED ZULFIKAR ALI BHUTTO
INSTITUTE OF SCIENCE AND TECHNOLOGY
Karachi Campus

Registration Form

Program Team

Program Team of (Name of Department / Faculty): Computer Science . PhD-CS

Team Leader: Dr- Saif

Name: Zohaib Jan

Position: Assistant Professor

Institution: SZABIST

Contact No: (Office) 118

Mobile No: 0334 -3559679

Email Address: zohaib.jan@szabist.edu.

Role in Program Team:

Beside his / her own responsibilities, he/ she will also be responsible for the following:

- To attend the SAR meetings as and when required.
- To ensure that Self Assessment Mechanism is being implemented as per the given guidelines.
- To prepare drafts of the SAR on the given dead line and send them to QEC for timely feedback.
- To keep the record of all the supporting documents addressing various standards of the SAR.
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Declaration of the Program Team Member:

I am quite willing to be part of this team and assure that I would do my best to play my role in the working of Program Team.

(Signature of PT Member)

29/3/16

Date

Approved By:

(Head of the Department)

Note: Completed form should be sent to the QEC

SHAHEED ZULFIKAR ALI BHUTTO
INSTITUTE OF SCIENCE AND TECHNOLOGY

SZABIST

SELF-ASSESSMENT REPORT

PhD - Computing (48 Credit Hours)

Assessment Team Registration Forms

SHAHEED ZULFIKAR ALI BHUTTO
INSTITUTE OF SCIENCE AND TECHNOLOGY
Karachi Campus

Registration Form

Assessment Team

Assessment Team of (Name of Department / Faculty): PhD - CS

Team Leader: Dr. Zaki Rashidi

Name: Dr. Zaki Rashidi

Position: Professor & Secretary BASR

Institution: SZABIST

Contact No: (Office) 111 - 922 - 478

Mobile No: -

Email Address: zaki@szabist.edu.pk

Role in Assessment Team:

- Beside his / her own responsibilities, He/ She will also be responsible for the following:
- The review of SAR
- Physical Verification of the academic facilities
- Verification of the contents of SAR
- Evidence gathering to support their findings
- Evaluation of SAR in light of the above points
- Reporting on the findings of the evaluation and visits
- Converting the report in the HEC-specified rubric format

Declaration of the Assessment Team Member:

I am quite willing to be part of this team and assure that I would do my best to play my role in the working of Assessment Team.

(Signature of AT Member)

3rd June '2016
Date

Approved By: Jawad

(Head of the QEC)

SHAHEED ZULFIKAR ALI BHUTTO
INSTITUTE OF SCIENCE AND TECHNOLOGY
Karachi Campus

Registration Form

Assessment Team

Assessment Team of (Name of Department / Faculty): PhD - CS

Team Leader: Dr. Zaki Rashidi

Name: Dr. Faraz Junejo. Position: HoD (Mechatronics).

Institution: SZABIST Contact No: (Office) 35824461-3

Mobile No: 0334-3217901 Email Address: faraz.junejo@szabist.edu.pk.

Role in Assessment Team:

- Beside his / her own responsibilities, He/ She will also be responsible for the following:
- The review of SAR
- Physical Verification of the academic facilities
- Verification of the contents of SAR
- Evidence gathering to support their findings
- Evaluation of SAR in light of the above points
- Reporting on the findings of the evaluation and visits
- Converting the report in the HEC-specified rubric format

Declaration of the Assessment Team Member:

I am quite willing to be part of this team and assure that I would do my best to play my role in the working of Assessment Team.

Faraz

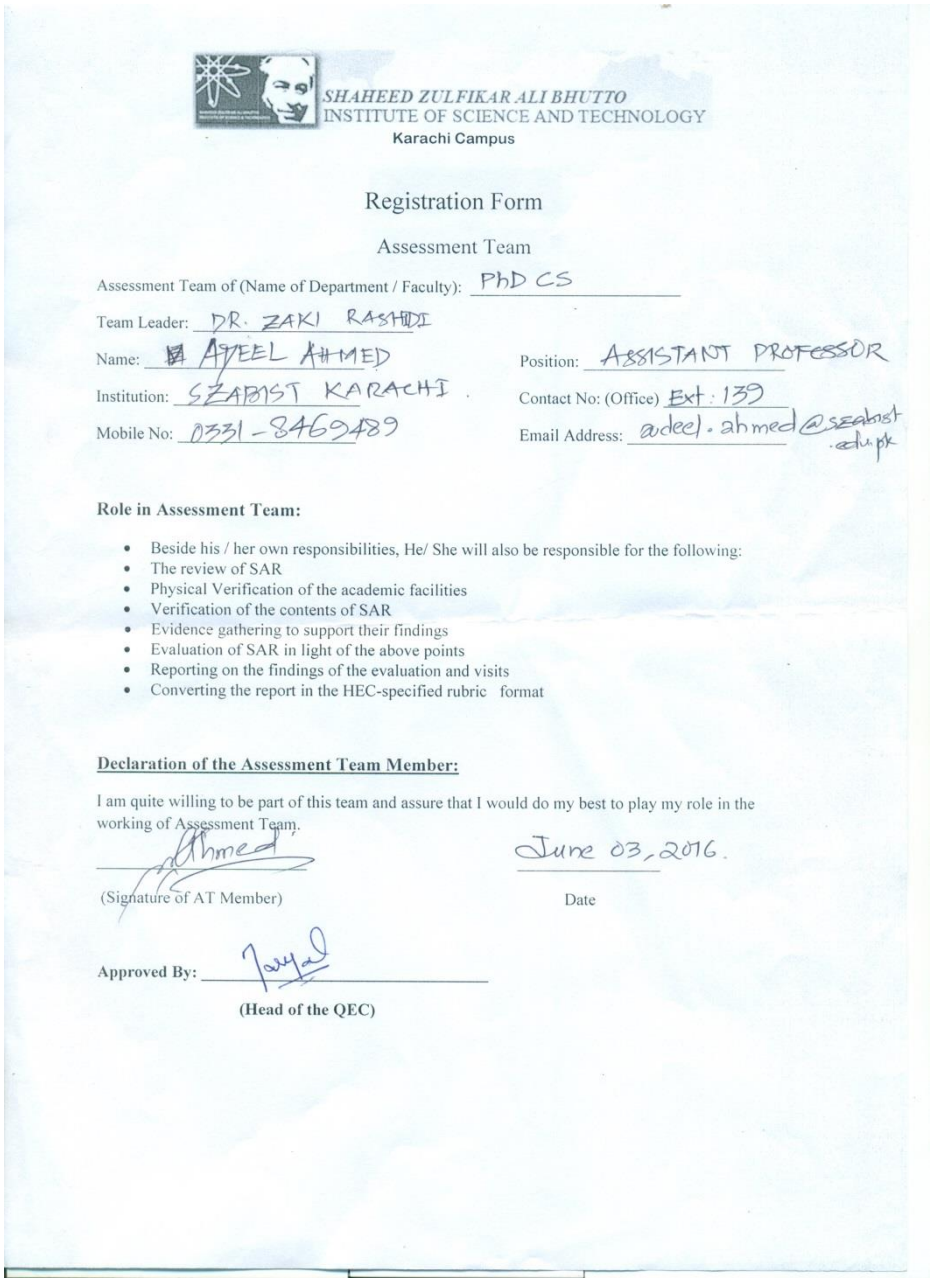
(Signature of AT Member)

03/06/16.

Date

Approved By:

(Head of the QEC)



SHAHEED ZULFIKAR ALI BHUTTO
INSTITUTE OF SCIENCE AND TECHNOLOGY
Karachi Campus

Registration Form

Assessment Team

Assessment Team of (Name of Department / Faculty): PhD CS

Team Leader: DR. ZAKI RASHDI

Name: ☒ ATEEL AHMED

Position: ASSISTANT PROFESSOR

Institution: SZABIST KARACHI

Contact No: (Office) Ext: 139

Mobile No: 0331-8469489

Email Address: adeel.ahmed@szabist.edu.pk

Role in Assessment Team:

- Beside his / her own responsibilities, He/ She will also be responsible for the following:
- The review of SAR
- Physical Verification of the academic facilities
- Verification of the contents of SAR
- Evidence gathering to support their findings
- Evaluation of SAR in light of the above points
- Reporting on the findings of the evaluation and visits
- Converting the report in the HEC-specified rubric format

Declaration of the Assessment Team Member:

I am quite willing to be part of this team and assure that I would do my best to play my role in the working of Assessment Team.

Ahmed

(Signature of AT Member)

June 03, 2016.

Date

Approved By: Javed

(Head of the QEC)