KHUSHAL KHAN KHATTAK UNIVERSITY, KARAK

BACHELOR OF SCIENCE IN BIOINFORMATICS

Self-Assessment Report

SUBMITTED TO QUALITY ENHANCEMENT CELL

Table of Contents

Criterion 1: Program Mission, Objectives and Outcomes 5

Standard 1-1: 6

Standard 1-2: 10

Standard 1-3: 11

Standard 1-4: 12

Criterion 2: Curriculum Design and Organization 20

Standard 2-1: 30

Standard 2-2: 31

Standard 2-3: 32

Standard 2-4: 34

Standard 2-5: 34

Standard 2-6: 37

Standard 2-7: 37

Criterion 3: Laboratories and Computing Facilities 38

Standard 3-1: 40

Standard 3-2: 40

Standard 3-3: 40

Criterion 4: Student Support and Advising 41

Standard 4-1: 42

Standard 4-2: 44

Standard 4-3: 44

Criterion 5: Process Control 45

Standard 5-1: 46

Standard 5-2: 49

Standard 5-3: 53

Standard 5-4: 59

Standard 5-5: 60

Criterion 6: Faculty 64

Standard 6-1: 65

Standard 6-2(b) 68

Standard 6-3: 69

Criterion 7: Institutional Facilities 70
Standard 7-1: 71
Standard 7-2: 71
Standard 7-3: 71
Criterion 8: Institiutional Support 72
Standard 8-1: 73
Standard 8-2: 73

Executive Summary

The Department of Computer Science and Bioinformatics was established in February 2013 and is pioneer department of the Khushal Khan Khattak University Karak. Currently, the department has almost 110 students and 08 full time faculty members (03 Assistant Professors (Bioinformatics) and 02 Assistant Professors (Computer Science)), three Lecturers (Computer Science) and 2 Lecturer is on visiting basis. To enhance the quality of education, QEC Cell of the university has established a QEC team comprising Dr. Siddiq Ur Rahman. The QEC cell has carried out the assessment of the department against the standards and criterion provided by HEC Quality Enhancement Cell. This assessment is carried out for fall semester 2024.

Major Findings

1. The department QEC team has found that the program BS-BI has satisfactory program objectives, program outcomes and the department has effective mechanism to assess the performance periodically.
2. It has been found that the BS-BI curriculum has been designed according to HEC Bioinformatics curriculum and also been reviewed and approved by Board of Studies.
3. The curriculum also satisfies the standard requirement laid by HEC QEC assessment manual.
4. The department follows the rules and regulations for admission, enrolment, migration provided by the University.
5. The department has three PhD qualified faculty members in Bioinformatics discipline.
6. The qualification and specialization of faculty members is not sufficient to teach all the courses, plan, modify and update the curricula.
7. The majority of faculty members are not satisfied with the facilities provided by the University.
8. The institution facilities e.g. library, classrooms, offices, e-learning are not sufficient at this stage.

Detailed report of assessment by the QEC team regarding each standard is provided in following sections.

Section 1

Criterion 1

Program Mission, Objectives and Outcomes

Program Mission, Objectives and Outcomes

Standard 1-1:

The program must have documented measurable objectives that support Faculty / College and institution mission statements.

1.1 Institution Background

Khushal Khan Khattak University, Karak is a public sector University established on 13-6-2012, at Karak district, Khyber Pakhtunkhwa, Pakistan. In short span of time, this university got enormous achievements towards pursuing its mission. Currently Fourteen departments are fully established and operational i.e. Management Sciences, Political Science, Education & Research, Computer Science and Bio-Informatics, Communication & Media Studies, Physics, Chemistry, Botany, Zoology, Mathematics, Psychology, Library and Information Sciences, English Language and Literature, and Geology respectively. Enrolled students are more than 1100. Khushal Khan Khattak University, Karak is fully equipped with technological tools and well qualified human resource from prestigious universities.

1.2 Institution Vision

"Competitive and conducive environment for research, discovery and learning"

1.3 Institution Mission

- To make university a place emanating knowledge, exhibiting liberty of thought and coveted seat of learning.
- To infuse spirit of excellence, creativity, innovation and scholarship into the life of the university.

- To offer competitive and nationally recognized opportunities for research, discovery, learning and engagement to a diverse population of students in a conducive environment.

1.4 QEC mission

"Enhancing quality to specified standards, catering education economy by developing quality culture"

1.5 Department vision

To foster excellent teaching, research, and service that develop highly skilled and educated citizens who can contribute to the uplifting of the well-being of the nation, and the international community.

1.6 Department mission

To produce leaders in the fields of bioinformatics who can face the ever-changing requirements of modern digital economies with vision, courage and competence. The department strives to produce the manpower that will contribute towards the development of Pakistan to gain a competitive edge in the global village.

1.7 Program mission

To combine the theoretical and practical aspect of bioinformatics and its uses in modern world. The program will equip the students with essential skills to the fundamental nature of Molecular Biology/Molecular Biology, work placement and career edge in the society.

1.8 Program Objectives

The BS (BI) programme is designed to provide students in depth professional training in range of Bioinformatics multidisciplinary subjects. To equip students with both theoretical background and hands on experience and to prepare the students for employment in bioinformatics related areas.

1.8.1 Professional Development

To provide a solid foundation in bioinformatics that supports an interdisciplinary education with liberal arts framework and prepares students for professions in bioinformatics.

1.8.2 Analytical Thinking Skills

To help students to develop the abilities to predict, to analyze, think critically and to deduct consider alternatives to be creative as problem solvers.

1.8.3 Academic Skills

To foster an aptitude for continuous learning and provide a sound base to graduate to pursue higher education and research with confidence.

1.9 Strategic Plan

The BS (BI) program has certain strengths and weakness. The main focus is to build on our strength and removing the weakness. Maintaining the strengths will be core focus in future. Following the HEC curriculum strictly the Department of Computer Science and Bioinformatics tends to include new both theoretical and practical courses which will help students in job placements. The students will be also encouraged for higher studies and research work in future. A new computer laboratory for the program is in pipeline along with PERN connectivity.

1.10 Strategic Objectives

The strategic objectives of the course are:

- Producing competent graduates in this program.
- Preparing students for job placement in local and international market.
- Preparing the students for higher studies in Bioinformatics multidisciplinary areas.

- After completion of four years program the graduates will either go for job placement or pursue their career in the field of teaching and can go for further advanced research work in Bioinformatics discipline.

Table 1.1 Program Objectives assessment

Objectives	How measured	When measured	Improvement identified	Improvement made
Professional Development	**Current students Survey**	Fall 2024	Focus will be made on project development	
Analytical Thinking Skills	**Current students Survey**	Fall 2024	Focus will be on practical subjects	
Academic Skills	**Current students Survey**	Fall 2024	Academic skills will be developed among students through the professional approach of faculty.	

1.5.4. Current Students identifications

- Focus should be made on practical subjects.
- The faculty should facilitate students with learning opportunities including consultation, coaching, mentoring, supervision, and technical assistance.
- To improve the student development skills more labs should be established in the university.
- A state-of-the-art lab should be established for the final year students in the department.
- More multimedia and teaching assistance equipment need to be provided to the faculty.
- Printers and photocopy machines should be installed in the department.
- The latest computer system with latest software should be installed.
- Wi-Fi availability must be insured.
- Mini project every semester.

Standard 1-2:

The program must have documented outcomes for graduating students. It must be demonstrated that the outcomes support the program objectives and that graduating students are capable of performing these outcomes.

1.11 Program outcomes

After completion of the BS Bioinformatics program, students will have the ability to;

I. Apply knowledge they obtained through out their BS Program in the real-world life.
II. Analyze a problem and design appropriate computing solution.
III. Perform in team of multidisciplinary function to accomplish a common goal.
IV. Identify, rectify Bioinformatics related problems.
V. Demonstrate efficient oral and written communication skills.
VI. Achieve problem solving and decision-making skills in Bioinformatics.

Table 1.2 Relationships between Program Objectives and Program Outcomes

Program Objectives	Program outcomes					
	1	2	3	4	5	6
Professional Development	√	√		√		
Analytical Thinking Skills		√	√	√		√
Academic Skills		√	√		√	

Standard 1-3:

The results of program's assessment and the extent to which they are used to improve the program must be documented.

The program is assessed on the basis of surveys conducted from current students.

1.12 Faculty evaluation by current students:

Table 1.3 Faculty Evaluation Report w.r.t Mean

Teacher Name	Mean
Dr. Noor ul Haq	4.6411
Dr. Siddiq Ur Rahman	4.7804
Mr. Arshad Iqbal	4.3302
Mr. Shad Muhammad	4.4234
Dr. Abdul Aziz	4.7800
Mr. Abdul Wajid Khan	4.6800
Mr. Nadir Iqbal	4.5556
Mr. Ghani ur Rehman	4.4922
Mr. Waqar Ahmed	4.5200
Miss Zohra	4.5100
Mr. Tariq Usman	4.3132
Mr. Shabbir Rehman	4.5213
Miss. Shahana Tariq	4.3100
Total	4.5213

1.13Alumni

There are 58 students graduated in Bioinformatics yet.

Standard 1-4:

The department must assess its overall performance periodically using quantifiable measures.

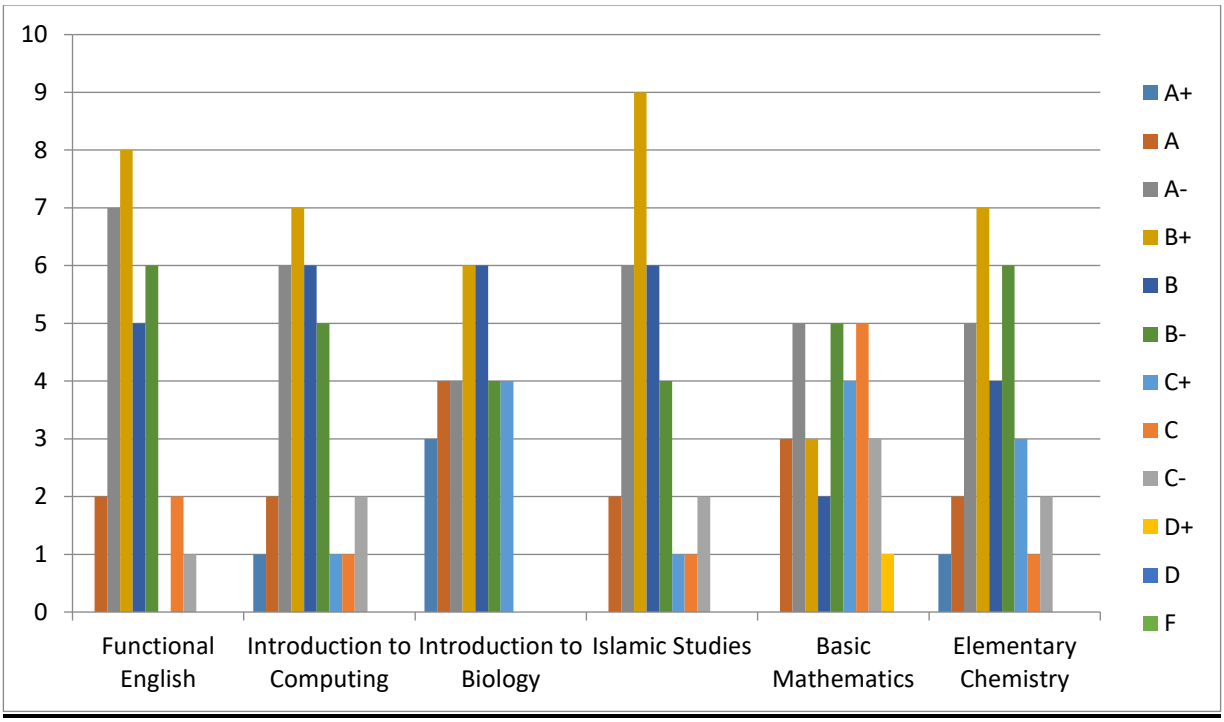
The performance of the department can be evaluated through performance of current students and Satisfaction of Faculty.

1.14 Current Student's Performance

The semester wise performance is given below.

1.14.1 Semester I

S #	Course Name	A+	A	A-	B+	B	B-	C+	C	C-	D+	D	F	Total Students
1	Functional English	00	02	07	08	05	06	0	02	01	00	00	00	31
2	Introduction to Computing	1	02	06	7	6	5	1	1	2	00	00	00	do
3	Introduction to Biology	3	4	4	6	6	4	4	00	00	00	00	00	do
4	Islamic Studies	0	02	06	9	6	4	1	1	2	00	00	00	do
5	Basic Mathematics	00	3	5	03	02	05	4	5	3	1	00	00	do
6	Elementary Chemistry	1	02	05	7	4	6	3	1	2	00	00	00	do

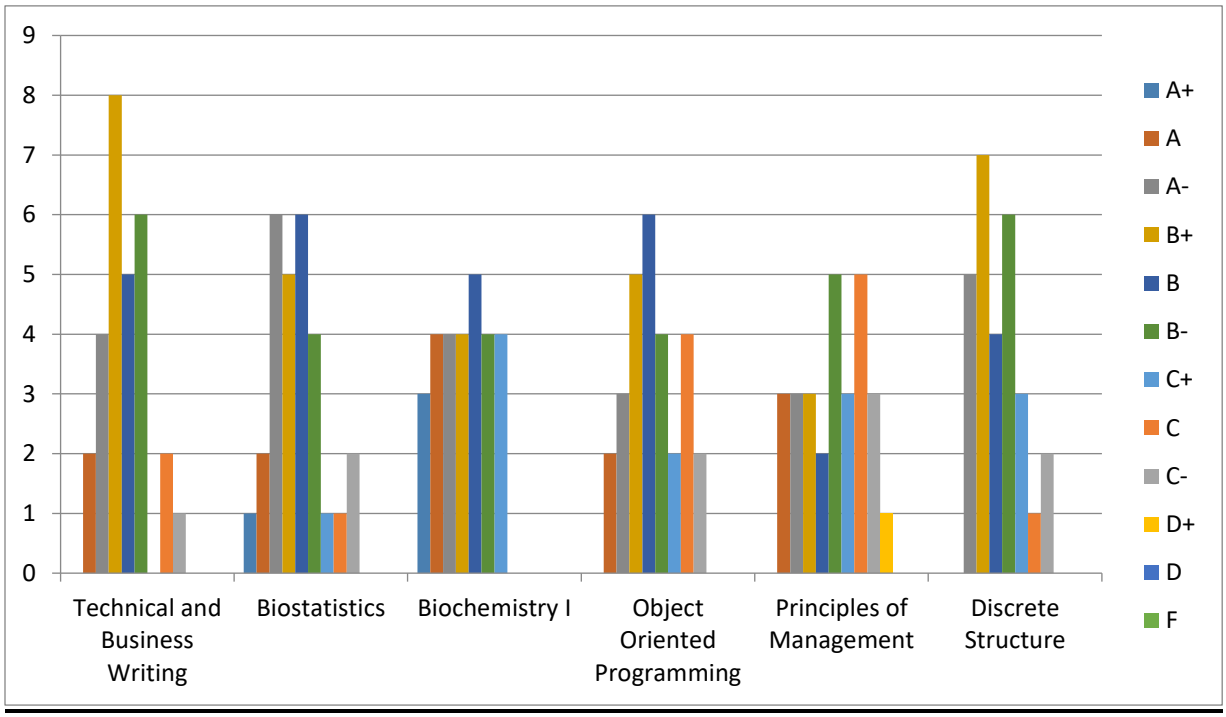


Grading Policy:

Marks % age	Letter grades	Grade point
90 – 100	A+	4.00
85 – 89	A	4.00
80 – 84	A-	3.66 – 3.93
75 – 79	B+	3.33 – 3.55
70 – 74	B	3.00 – 3.26
65 – 69	B-	2.66 – 2.93
60 – 64	C+	2.33 – 2.59
56 – 59	C	2.00 – 2.25
54 – 55	C-	1.66 –1.83
52 – 53	D+	1.30 – 1.48
50 – 51	D	1.00 – 1.15
49 and below	F	0.00

1.14.2 Semester III

S #	Course Name	A+	A	A-	B+	B	B-	C+	C	C-	D+	D	F	Total Students
1	Technical and Business Writing	00	02	04	08	05	06	0	02	01	00	00	00	28
2	Biostatistics	1	02	06	5	6	4	1	1	2	00	00	00	do
3	Biochemistry I	3	4	4	4	5	4	4	00	00	00	00	00	do
4	Object Oriented Programming	0	02	03	5	6	4	2	4	2	00	00	00	do
5	Principles of Management	00	3	3	03	02	05	3	5	3	1	00	00	do
6	Discrete Structure	0	00	05	7	4	6	3	1	2	00	00	00	do



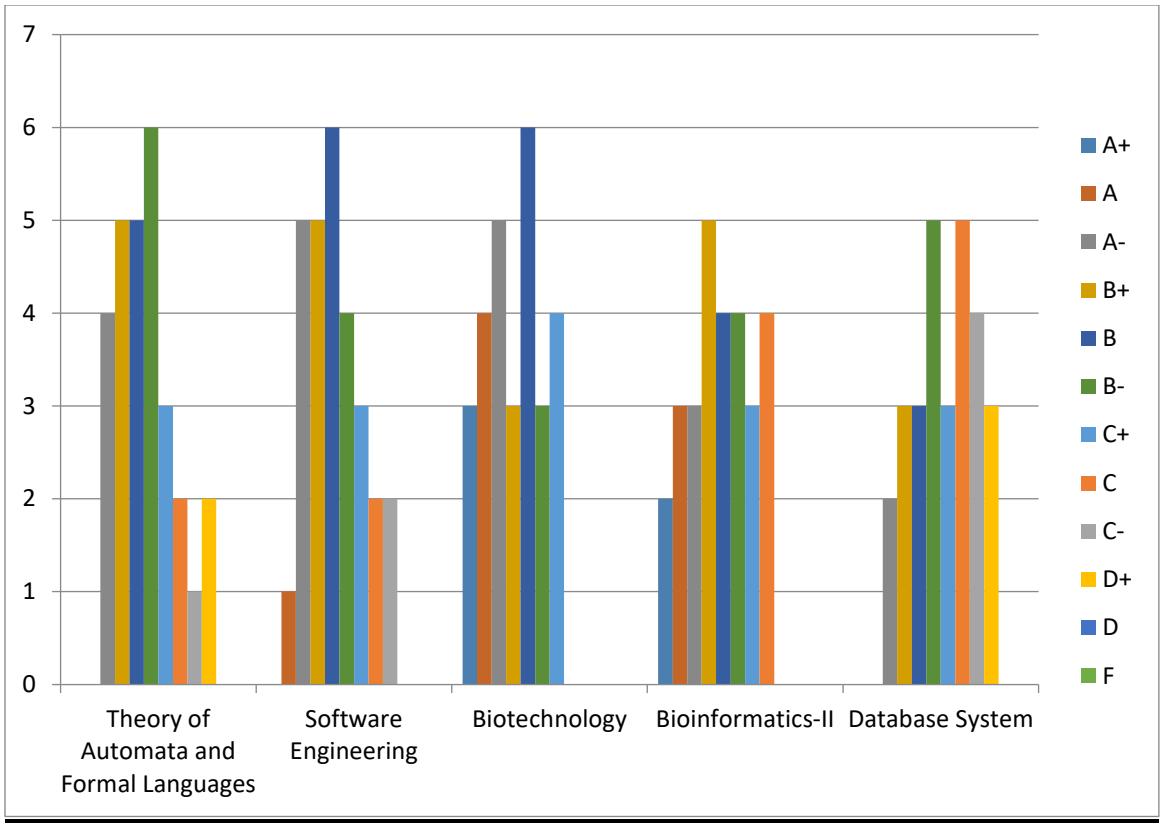
Grading Policy:

Marks % age	Letter grades	Grade point
85-100	A	4.00

80-84	A-	3.66
75-79	B+	3.33
71-74	B	3.00
68-70	B-	2.66
64-67	C+	2.33
61-63	C	2.00
58-60	C-	1.66
54-57	D+	1.30
50-53	D	1.00
Below 50	F	

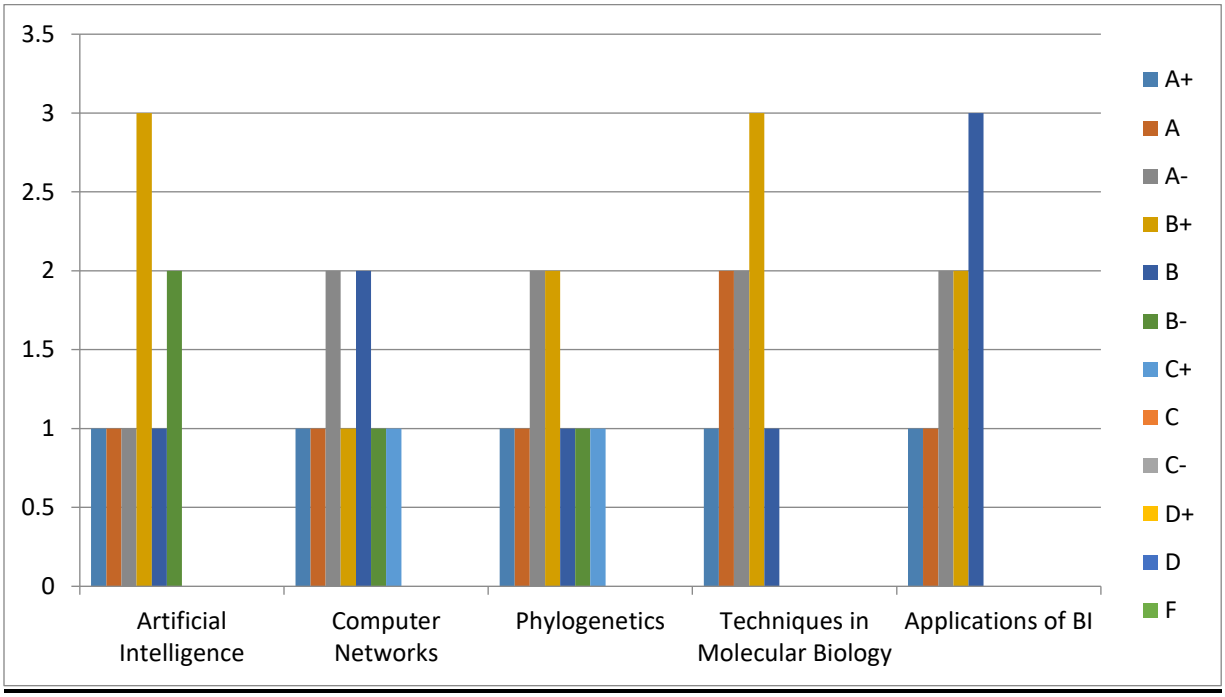
1.14.3 Semester V

S #	Course Name	A+	A	A-	B+	B	B-	C+	C	C-	D+	D	F	Total Students
1	Theory of Automata and Formal Languages	00	00	04	05	05	06	3	02	01	02	00	00	28
2	Software Engineering	0	01	05	5	6	4	3	2	2	00	00	00	do
3	Biotechnology	3	4	5	3	6	3	4	00	00	00	00	00	do
4	Bioinformatics-II	2	03	03	5	4	4	3	4	0	00	00	00	do
5	Database System	00	0	2	03	03	05	3	5	4	3	00	00	do



1.14.4 Semester VI

S #	Course Name	A+	A	A-	B+	B	B-	C+	C	C-	D+	D	F	Total Students
1	Artificial Intelligence	1	1	1	03	1	02	0	00	0	00	0	00	9
2	Computer Networks	1	1	2	1	02	01	1	00	0	00	0	00	Do
3	Phylogenetics	1	1	2	2	1	01	1	00	0	00	0	00	Do
4	Techniques in Molecular Biology	1	2	2	3	1	00	0	00	0	00	0	00	Do
5	Applications of BI	1	1	2	2	3	00	0	00	0	00	0	00	Do



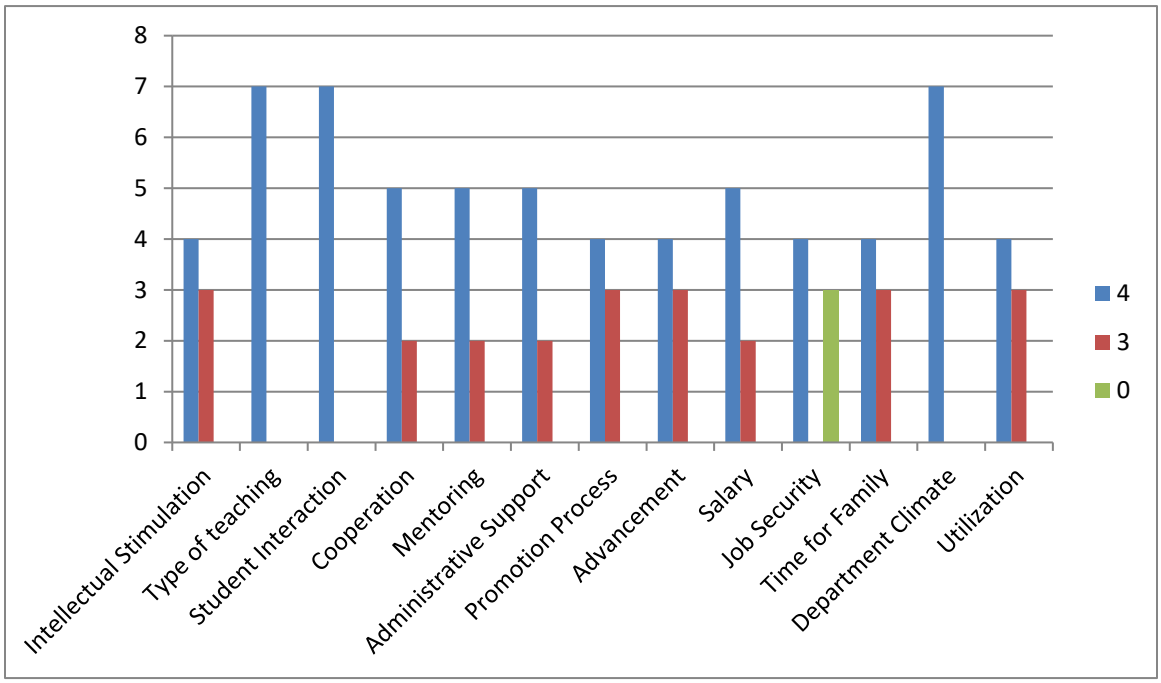
1.1 Faculty Survey

"Faculty Survey" was conducted, and summary of faculty members' feedback is given in table 1.4;

Table 1.4: Summary of Faculty Survey

	A	B	C	D	E
Research Mix	4	3	0	0	0
Intellectual Stimulation	4	3	0	0	0
Type of teaching	7	0	0	0	0
Student Interaction	7	0	0	0	0
Cooperation	5	2	0	0	0
Mentoring	5	2	0	0	0
Administrative Support	5	2	0	0	0
Promotion Process	4	3	0	0	0
Advancement	4	3	0	0	0
Salary	5	2	0	0	0

Job Security	4	0	3	0	0
Time for Family	4	3	0	0	0
Department Climate	7	0	0	0	0
Utilization	4	3	0	0	0



Summary of the faculty members is presented in following chart;

1.1.1 Faculty Student Ratios

Table 1.5: Student-faculty ratio

Total number of Students currently enrolled	Total full-time Faculty members	Ratio
126	8	1-18

Section 2

Criterion 2

Curriculum Design and Organization

The current developments in Bioinformatics have offered new exciting opportunities and challenges for creation of inventive learning environments in its curriculum design. The major element here is to train the graduates for the future. The challenge of getting all newly emerging technologies included into the curriculum is becoming essential for the usefulness of curricula. There is requirement for curricula structures that are really able to produce as we put new demands on them. The curriculum is required to provide integration of all components and the foundations that allow accessing all of the new knowledge and technology to fulfil the vision of future.

The curriculum is designed and organised according to HEC curriculum for Bioinformatics.

2.1 Degree Title

Bachelor of Science in Bioinformatics

2.2 Definition Course Code

Discipline	**Year**	**Area**	**Course Number**
BI represents courses from Bioinformatics discipline. MATH represents courses form Mathematics discipline, IS represents courses form Islamic Studies discipline, Etc.	Year of courses e.g. For 1st and 2nd semester will be consider 1. For 3rd and 4th semester will be consider 2. Onward	Domain of courses e.g. 1. Fundamental Courses represent **0** 2.Programming and Computing: **represent 1** etc.	Courses numbering in each domain. Introduction to Biology, Introduction to Computer Programming, Fundamentals of Genetics, etc in domain 0 represent 1,2,3 respectively.
CS	1	0	1

2.3 Definition of Credit Hours

Theory Credit Hours	Lab. Credit hours	Total Credit hours
Number of theory classes in week for the duration 1 hours	Number of lab classes in week for duration 1 hours, Three classes of one (1) hours will be considered one credit hours	Theory Credit Hours + Lab credits hours
e.g.		
3	1	4
2	1	3

2.4 Program Structure and Degree Plan

Duration: 4 Years
One (1) semester: 18 weeks (Inclusive two (2) weeks for mid & final examinations)
Total Semesters: 8 Semesters
Total Credit Hours: 133 (one hundred and thirty-three)

Semester wise Scheme of Studies for BS (BI)

Semester One

S#	Title of Course	Course Code	Credit Hours	Faculty & General Course
1	Functional English	EG103	3(3+0)	Group A
2	Introduction to Computing	CS101	3(2+1)	Group A
3	Introduction to Biology	BI101	3(2+1)	Core Course
4	Islamic Studies	IS106	2(2+0)	Group A
5	Basic Mathematics	MATH130	3(3+0)	Core Course
6	Elementary Chemistry	BI102	3(2+1)	Core Course

Semester Two

S#	Title of Course	Course Code	Credit Hours	Faculty & General Course
1	Introduction to Computer Programming	CS102	4(3+1)	Core Course
2	Calculus and Analytical Geometry	MATH101	3(3+0)	Core Course
3	Fundamentals of Genetics	BI103	3(2+1)	Core Course
4	Pak-Studies	PS104	2(2+0)	Group A
5	Intro. To Cell Biology	BI104	3(2+1)	Core Course
6	Microbiology	BI105	3(2+1)	Elective 1

Semester Three

S#	Title of Course	Course Code	Credit Hours	Faculty & General Course
1	Technical and Business Writing	EG104	3(3+0)	Group A
2	Biostatistics	BI201	3(3+0)	Core Course
3	Biochemistry I	BI202	3(2+1)	Core Course
4	Object Oriented Programming	CS111	4(3+1)	Core Course
5	Principles of Management	MG205	2(2+0)	Group A
6	Discrete Structure	CS112	3(3+0)	Core Course

Semester Four

S#	Title of Course	Course Code	Credit Hours	Faculty & General Course
1	Biochemistry II	BI211	3(3+0)	Group A
2	Data Structures & Algorithm	CS211	3(2+1)	Core Course
3	Communication Skills	EG204	3(3+0)	Group A
4	Bioinformatics-I	BI203	3(3+0)	Core Course
5	Differential Equations	MATH203	3(3+0)	Core Course
6	Molecular Biology	BI212	3(2+1)	Core course

Semester Five

S#	Title of Course	Course Code	Credit Hours	Faculty & General Course
1	Theory of Automata and Formal Languages	CS314	3(3+0)	Core course
2	Software Engineering	CS312	3(3+0)	Core Course
3	Biotechnology	BI311	3(2+1)	Group B
4	Bioinformatics-II	BI312	3(2+1)	Core Course
5	Database System	CS223	3(2+1)	Core Course

Semester Six

S #	Title of Course	Course Code	Credit Hours	Faculty & General Course
1	Artificial Intelligence	CS361	3(3+0)	Group B
2	Computer Networks	CS471	3(2+1)	Elective 2
3	Phylogenetics	BI313	3(3+0)	Core Course
4	Techniques in Molecular Biology	BI-314	3(2+1)	Core Course
5	Applications of BI	BI315	3(2+1)	Elective 3

Semester Seven

S#	Title of Course	Course Code	Credit Hours	Faculty & General Course
1	Human Molecular Genetics	BI411	3(2+1)	Elective 4
2	Computer Aided Drugs Design	BI412	3(2+1)	Core Course
3	Simulation and Modeling	CS457	3(2+1)	Elective 5
4	Scripting Language	BI413	3(2+1)	Elective 6
5	Proteomics	BI414	3(3+0)	Core Course
6	Final Year Project (Phase 1)	BI500	3(3+0)	Core Course

Semester Eight

S#	Title of Course	Course Code	Credit Hours	Faculty & General Course
1	Biosafety & Bioethics	BI415	3(3+0)	Group B
2	Forensic Science	BI416	3(3+0)	Elective 7
3	Cancer Genetics	BI417	3(3+0)	Group B
4	Cell & Tissue Culture	BI418	3(2+1)	Core Course
5	Final Year Project (Phase 2)	BI500	3(3+0)	Core Course

2.5 Curriculum breakdown:

Course Category and Credit Hours for BS (BI)

Category A (22 Credit hrs)

Course Code	Course	Credit
EG103	Functional English	3
EG104	Technical and Business Writing	3
EG204	Communication Skills	3
PS104	Pakistan Studies	2
IS106	Islamic Studies	2
CS101	Introduction to computing	3
MG203	Introduction to Financial Accounting	3
MG205	Principles of Management	2

Category B (12 Credit hrs)

Course Code	Course	Credit
MC401	Mass Communication	3
GB402	Globalization	3
BI362	System Biology	3
BI415	Biosafety & Bioethics	3
BI361	Cancer Biology	3
BI241	Applied Bioinformatics	3
CS462	Machine Learning	3
BI 311	Biotechnology	3
BI364	Special Topics in BI	3
CS361	Artificial Intelligence	3
BI417	Cancer Genetics	3

Core Courses (80 Credit hrs)

Course Code	Course Title	Credit Hrs
BI101	Introduction to Biology	3
BI-102	Elementary Chemistry	3
MATH203	Differential Equations	3
BI412	Computer Aided Drugs Design	3
BI103	Fundamentals of Genetics	3
BI104	Introduction to Cell Biology	3
BI202	Biochemistry I	3
BI211	Biochemistry II	3
BI203	Bioinformatics-I	3
BI312	Bioinformatics-II	3
BI212	Molecular Biology	3
BI446	Computational Biology	3
BI316	Immunology	3
BI313	Phylogenetics	3
CS314	Theory of Automata and Formal Languages	3
BI414	Proteomics	3
BI411	Human Molecular Genetics	3
BI214	Microbiology	3
BI314	Techniques in Molecular Biology	3
BI344	Methods in Bioinformatics	3
CS211	Data Structures and Algorithm	3
CS102	Introduction to Computer Programming	4
CS311	Advance Object Oriented Programming	3

MATH101	Calculus and Analytical Geometry	3
CS112	Discrete Structures	3
CS223	Database Systems	3
CS111	Object Oriented Programming	4
BI418	Cell & Tissue Culture	3
BI201	Biostatistics	3
MATHS203	Differential Equations	3
MATH130	Basic Mathematics	3
BI500	Project-I	3
BI501	Project-II	3

Elective Courses (21 Credit Hrs)

Course Code	**Course Title**	**Credit Hrs**
BI105	Microbiology	3
BI315	Applications of BI	3
MATH301	Linear Algebra	3
CS471	Computer Networks	3
BI411	Human Molecular Genetics	3
BI352	Cell Signaling	3
BI449	Bioinformatics: Algorithms & System	3
CS403	Informatics Software Engineering	3
BI447	Bioinformatics software development	3
CS442	Computer Graphics	3

BI443	Nanotechnology	3
BI215	Metabolism	3
BI454	Molecular Mechanism of Antimicrobial drugs	3
CS457	Simulation and Modeling	3
BI413	Scripting language	3
BI416	Forensic Science	3
BI352	Genetic engineering	3

Semester wise Credit Hours for BS (BI)

S.No.	Semester	Credit Hours
1	Semester 1	17
2	Semester 2	18
3	Semester 3	18
4	Semester 4	18
5	Semester 5	15
6	Semester 6	15
7	Semester 7	18
8	Semester 8	15
Total Credit Hours		134

Standard 2-1:

The curriculum must be consistent and supports the program's documented objectives.

The standard 2-1 demonstrates the content of courses which are been linked with the program objectives which can be seen at Table 2.2.

Table 2.2: Courses versus program objectives

Courses/Groups of Courses	Objectives		
	Professional Development	Analytical Thinking Skills	Academic Skills
Bioinformatics-Core Courses	√	√	
Major-Core Courses	√	√	√
Supporting Sciences		√	√
General Electives			√
University Electives			√

Standard 2-2:

Theoretical background, problems analysis and solution design must be stressed within the program's core material.

Table 2.3: Standard 2-2 requirement

Theoretical background	Analytical Thinking Skills	Solution design
Discrete Structures	Artificial Intelligence	Introduction to Programming Fundamentals
Theory of Automata & Formal languages	Compiler Construction	Object Oriented Programming
Digital Logic & Design	Data Structures and Algorithms	Advanced Object Oriented Programming

Operating Systems	Design and analysis of Algorithm	Database Systems
Microprocessor & Assembly Language	Computer Architecture & Organization	Software engineering and Software Project Management
Computer Architecture & organization		Data Communication & Computer Networks
		Visual C# Programming
		Final Project

Standard 2-3:

The curriculum must satisfy the core requirements for the program, as specified by the respective accreditation body.

The Department of Computer Science and Bioinformatics follows the curriculum regulated by Higher Education Commission.

Core Courses (80 Credit hrs)		
Course Code	**Course Title**	**Credit Hrs**
BI101	Introduction to Biology	3
BI-102	Elementary Chemistry	3
MATH203	Differential Equations	3
BI412	Computer Aided Drugs Design	3
BI103	Fundamentals of Genetics	3
BI104	Introduction to Cell Biology	3
BI202	Biochemistry I	3
BI211	Biochemistry II	3

BI203	Bioinformatics-I	3
BI312	Bioinformatics-II	3
BI212	Molecular Biology	3
BI446	Computational Biology	3
BI316	Immunology	3
BI313	Phylogenetics	3
CS314	Theory of Automata and Formal Languages	3
BI414	Proteomics	3
BI411	Human Molecular Genetics	3
BI214	Microbiology	3
BI314	Techniques in Molecular Biology	3
BI344	Methods in Bioinformatics	3
CS211	Data Structures and Algorithm	3
CS102	Introduction to Computer Programming	4
CS311	Advance Object Oriented Programming	3
MATH101	Calculus and Analytical Geometry	3
CS112	Discrete Structures	3
CS223	Database Systems	3
CS111	Object Oriented Programming	4
BI418	Cell & Tissue Culture	3
BI201	Biostatistics	3
MATHS203	Differential Equations	3
MATH130	Basic Mathematics	3
BI500	Project-I	3

BI501	Project-II	3

Standard 2-4:

The curriculum must satisfy the major requirements for the program as specified by HEC, the respective accreditation body / councils.

The Department of Computer Science and Bioinformatics follows the curriculum regulated by the Higher Education Commission. Below is the summary of minimum requirements of components of the curriculum.

Category	Credit Hours
Bioinformatics Core Courses	80
General Courses	54
Total Credit Hours	134

Standard 2-5:

The curriculum must satisfy general education, arts, and professional and other discipline requirements for the program, as specified by the respective accreditation body / council.

In order to satisfy standard 2-5, the students are required to pass all courses recommended by the academic council of the university for the Bioinformatics. The Department of Computer Science and Bioinformatics follows the curriculum which satisfies general education, professional and other discipline requirements for the program, as specified by the Higher Education Commission.

2.5.1. General Education Courses:

Category A (22 Credit hrs)

Course Code	Course	Credit
EG103	Functional English	3
EG104	Technical and Business Writing	3
EG204	Communication Skills	3
PS104	Pakistan Studies	2
IS106	Islamic Studies	2
CS101	Introduction to computing	3
MG203	Introduction to Financial Accounting	3
MG205	Principles of Management	2

Category B (12 Credit hrs)

Course Code	Course	Credit
MC401	Mass Communication	3
GB402	Globalization	3
BI362	System Biology	3
BI415	Biosafety & Bioethics	3
BI361	Cancer Biology	3
BI241	Applied Bioinformatics	3
CS462	Machine Learning	3
BI 311	Biotechnology	3

BI364	Special Topics in BI	3
CS361	Artificial Intelligence	3
BI417	Cancer Genetics	3

2.5.2. University Elective Courses:

Elective Courses (21 Credit Hrs)

Course Code	Course Title	Credit Hrs
BI105	Microbiology	3
BI315	Applications of BI	3
MATH301	Linear Algebra	3
CS471	Computer Networks	3
BI411	Human Molecular Genetics	3
BI352	Cell Signaling	3
BI449	Bioinformatics: Algorithms & System	3
CS403	Informatics Software Engineering	3
BI447	Bioinformatics software development	3
CS442	Computer Graphics	3
BI443	Nanotechnology	3
BI215	Metabolism	3
BI454	Molecular Mechanism of Antimicrobial drugs	3
CS457	Simulation and Modeling	3
BI413	Scripting language	3
BI416	Forensic Science	3

BI352	Genetic engineering	3

Standard 2-6:

Information technology component of the curriculum must be integrated throughout the program.

The main objective of this program is to provide the students the ability to understand the computer and information technology and its applications in the real life.

Course Code	Course Title	Credit Hours	Prerequisite
CS	Introduction to Computer Programming	4(3+1)	Nil
CS	Introduction to Computing	3(2+1)	Nil

Standard 2-7:

Oral and written communication skills of the student must be developed and applied in the program.

To develop oral and written communication skills of the students, CS &Bio-Info Department offer following courses.

Course Code	Course Title	Credit Hours	Prerequisite
EG104	Functional English	3	
EG103	Technical & Business Writing	3	
EG204	Communication Skills	3	
	Tutorial class	Non-Cr.	

Section 3

Criterion 3

Laboratories and Computing Facilities

Existing Computer labs

The Department of Computer Science and Bio-Informatics has two computer labs having 50 computers installed in it and one Molecular Biology laboratory. The computers have no licensed software and only trials version sof software are installed. The computer lab has one lab assistant to look after the computer lab.

Criterion 3 – Laboratories and Computing Facilities	
Factors	
1.	Are laboratory manuals / documentation / instructions etc. for experiments available and readily accessible to faculty and students?
2.	Are there adequate number of support personnel for instruction and maintaining the laboratories?
3.	Are the university's infrastructure and facilities adequate to support the program's objectives?
Actions taken based on the results of periodic assessments.	
Lab manuals have been developed for every practical oriented course. The department has no proper PERN connectivity.	

Standard 3-1:

Laboratory manuals/documentation/instructions for experiments must be available and readily accessible to faculty and students.

The Department of Computer Science and Bioinformatics has developed lab manuals for all the practical oriented courses. The lab manuals are included in the BOS documents and are available for the students in the computer lab.

Standard 3-2:

There must be adequate support personnel for instruction and maintaining the laboratories.

The Department of Computer Science and Bioinformatics has one Network support sub-engineer and one lab assistant. The network sub-engineer is responsible for necessary installations in the campus and lab assistant is available for the students in the lab during the classes.

Standard 3-3:

The University computing infrastructure and facilities must be adequate to support the program's objectives.

The Department of Computer Science and Bioinformatics is providing the following computing facilities to full fill the requirements of the students.

S.No	Name of item	Quantity	Location
1	Computer system	50	Campus
2	Multimedia	6	Campus
3	IT personnel	2	campus

Section 4

Criterion 4

Student Support and Advising

The Department of Computer Science and Bioinformatics makes sure to complete the student program within time by offering approved subjects each semester regulated by HEC. Students' requests regarding elective subjects are selected through the academic counselling and are made sure to make it improve by taking important measures in the program. Students are supported for the matters regarding academics and personal career on weekly basis through direct interaction with their instructors. An Academic Coordinator is available in the Department of Computer Science and Bioinformatics for students' guidance. In order to meet the criterion 4, the following standards are discussed.

Standard 4-1:

Courses must be offered with sufficient frequency and number for students to complete the program in a timely manner.

The Department of Computer Science and Bioinformatics follows the curriculum provided by the HEC.

One (1) semester: 18 weeks (Inclusive two (2) weeks for mid & final examinations

Total Semesters: 8 Semesters

Total Credit Hours: 134 (one hundred and thirty-three)

BS (BI) program is comprised of forty three (43) courses as per HEC equal distribution criteria.

Definition of Credit Hours

Theory Credit Hours	Lab. Credit hours	Total Credit hours
Number of theory classes in week for the duration 1 hours	Number of lab classes in week for duration 1 hours, Three classes of one (1) hour will be consider one credit hours	Theory Credit Hours + Lab. credits hours
e.g.		
3	1	4
2	1	3

Standard 4-2:

Courses in the major area of study must be structured to ensure effective interaction between students, faculty and teaching assistants.

The Department of Computer Science and Bioinformatics has fully qualified faculty members related to different areas of computer science and Bioinformatics. They are very enthusiastic to fulfill the requirements in teaching of all approved courses by the academic council according to the syllabus provided by Higher Education Commission. The department ensures effective interaction between students and faculty members for counselling on weekly basis. In order to follow the policy provided by university, the department has Assistant Professors and lecturers to teach all the courses.

Detailed of the Faculty w.r.t classes are attached as Annexure III.

Standard 4-3:

Guidance on how to complete the program must be available to all students and access to academic advising must be available to make course decisions and career choices.

When the student gets admission at the university, all program requirements are communicated to them through prospectus. For full time students' affairs and matters, a coordinator is present at the department to facilitate their issues. Further, it is ensured by the coordinator that students' enrollment is made properly according to program's requirements.

Additionally, tutorial classes have been started on weekly basis to provide academic advising for the students.

Section 5

Criterion 5

Process Control

The important rules, policies and regulations which address the standard 5 are provided in the sections below.

Standard 5-1:

The process by which students are admitted to the program must be based on quantitative and qualitative criteria and clearly documented. This process must be periodically evaluated to ensure that it is meeting its objectives.

5.1 Rules and Procedures for admission

1. A candidate interested in admission for a degree programme shall make an application for admission in response to advertisement by the university, on a prescribed admission form issued by the University within the specified dates. Attested copies of certificates / testimonials and other required documents should be attached to the application form.
2. A candidate may be required to qualify the entrance test to be conducted by the Admissions Committee. The admission to BS program will be on merit to be based on entrance test, academic performance in intermediate examination and other factors as may be prescribed by the competent authority.
3. The admission to a degree programme is normally in the month of September for Fall Semester, January for spring and June for Summer.
4. The candidates seeking admission for the first time in any of the degree courses must complete all admission/enrolment requirements within specified dates, failing which may lead to cancellation of Admission.
5. Any candidate who was punished (major penalty) by his parent institution/university, for the act of indiscipline and objectionable activities, will not be allowed admission in the University.
6. A student at the time of first admission/enrolment with any communicable disease or mental or physical disability which may stand in the way of his selected field of study may be denied admission.
7. The Admission Committee may refuse admission to any student who in their (members) opinion has a background not conducive to learning.

8. The candidates and their parents have to give an undertaking to the effect that they will abide by the Rules and Regulations of the University and such other instructions as may be issued by the competent authority from time-to-time.

9. Each student has to submit an affidavit not to take part in political activities detrimental to the academic environment of the University.

10. The final authority of admission is with the respective Dean / Head of the Department or the Registrar. The admission committee is a recommendatory body.

11. The admission of candidates will remain provisional unless all University fees are paid and testimonials / documents verified.

5.1.1. Admission to International Students:

The credentials of a foreign student who seeks admission in the University are evaluated in accordance with the general regulations related to admission of foreign students as approved by the Ministry of Foreign Affairs and the Ministry of Education, Government of Pakistan. The applications for admission of foreign nationals should come through their embassies in Islamabad to Ministry of Education, Government of Pakistan, and to the University. Foreign students will be admitted only after proper verification of their applications and documents by the University.

5.2 Eligibility criteria for admission;

A minimum of 12 years of education:
Intermediate (Pre – Engineering / Pre – Medical / ICS), A Levels or equivalent (minimum 45% marks)

5.3 Documents requirements;

- Matric DMC & Provisional Certificate / Secondary School Certificate
- Intermediate DMC & Provisional Certificate / Higher Secondary School Certificate
- Copy of Computerized National Identity card- Mandatory

- Four Recent Passport Size Photographs- Coloured

5.4 Migration/transfer Policy

A student from other educational institution, who intends to migrate to University, shall meet the following requirements:

- A genuine and plausible reason for migration.
- Production of a certificate of good character from his/her parent institution.
- Production of detailed marks certificate and syllabi of courses he/she studied for equivalence purposes.

5.5 Transfer of Credits:

- Students desiring to transfer their credits, earned at other institutions, will be accepted under the following conditions:
- Credits have been earned from institutions recognized / accredited by HEC.
- Original transcript is produced along with photocopy.
- Course outlines, duly signed by the institute, are produced for evaluation.
- Credits will be acceptable for undergraduate courses passed with at least 'C' grade / 56% marks / 2.0 out of 4.0 GP or equivalent and at least 'B' at least 60% / 3.0 / 4.0 GP for graduate courses.
- Credits from other institution will be evaluated by the equivalence/evaluation committee on a course-to-course basis with the courses offered by the University.
- Course outlines should match minimum 75% with that of the University.
- Maximum credit equivalent to 40% of the total credits of the degree programme of the University may be accepted.
- Letter grades / grade points of the transferred courses will not be counted towards CGPA of courses of the University.
- The transferred courses will appear in the full transcript of the University.
- Character certificate, from the last attended institution, stating that the student has not been expelled on misconduct, indiscipline, undesirable activities, may be produced.

- Students should not assume that their academic qualifications will allow them transfer of credits till written confirmation has been given.
- In case of acceptance and willingness of the student for admission, he will have to produce migration certificate from the last attended institution.

5.6 Change of subject and adjustment / refund of fee etc.

- The application for change of subject and adjustment of fee etc. shall be submitted through the respective Heads of Departments to the Registrar of the University.
- The change in subject and adjustment of fee etc. shall be allowed to the student on the following conditions:
    - That the admission of the student has been approved by the Vice Chancellor;
    - That the Heads of Departments are agreed to the change and the application is submitted to the University Registrar within 15 days (for semester system) and one month (for annual system) of his / her attending the previous Department subject to the fulfillment of the prescribed criteria for desired department.
    - In case of change of subject from one Department to another, all fees etc. shall be adjustable;
    - The tuition fees shall be refunded in full if the applicant cancels his/her admission within seven days of the commencement of classes and 50% tuition fee within 15 days after the commencement of classes. No tuition fee will be refunded after 15 days.

Standard 5-2:

The process by which students are registered in the program and monitoring of students' progress to ensure timely completion of the program must be documented. This process must be periodically evaluated to ensure that it is meeting its objectives.

5.7 Student Progress Monitoring Procedure;

Regarding monitoring, at the end of the semester, each teacher shall award letter grades for semester and provide master award list to the Controller of Examinations, who shall prepare

copies of the award list, retaining a copy himself and sending one each to the concerned Director / Head, Dean of Faculties and Registrar.

Examination and Evaluation:

Each subject shall carry100 marks during a semester. Students shall be assessed for 50% of the grade during the semester and 50% at the end of the semester. Distribution of Marks will be as under:

S.No:	Component	Marks
A	Attendance	05
B	Test, Quiz, Time-constraint, Assignments, Group Assignments, Class participation	15
C	Mid-term	30
D	Final Term	50
Total		**100**

The University may engage external examiners for the final examinations for quality control purposes. Final examination question papers set by external examiners will be moderated by the teachers concerned. In case of concerned teacher is not available, it can be moderated by Chairperson /Director /HoD or other teacher authorized by the competent authority.

5.8 Enrollment at the Department:

1. All students shall fill the prescribed Registration Form at the beginning of each semester for the courses they will study during that semester and submit the form to the office concerned.
2. At the beginning of each semester, students shall be offered courses of full load (12 or more Credit Hours) but they have the choice to select less courses than the full load. A student registering for less than 12 Credit hours will be a part time student.
3. Enrolment shall be considered incomplete if a student does not make full payment of prescribed fees and submit the prescribed form in the Admission Office.
4. Enrolment and fee payment shall be completed within notified dates unless the authority concerned may, under special circumstances, permit a student with a late fee to enroll.
5. A student shall enroll himself each semester unless he has completed all the requirements for the degree. In case of non-enrolment in any semester his admission shall stand

suspended. The authority may remove suspension from him if he/she applies for regularization. In case, if one fails to enroll for two consecutive semesters, his admission shall be cancelled. Re-admission of such student shall be considered as a fresh admission.

6. When a course, for which a student is enrolled, cannot be offered according to the announced program he/she may take an alternative course. However, this must be done not later than 15 days after the date of enrolment.
7. A student shall be allowed to:
    a. change a course within 7 days of the commencement of a semester, and
    b. Withdraw from a course within 4 weeks of the commencement of semester. Withdrawn courses will appear on transcript with letter grade "W".
    c. Change his declared specialization / major choice upto 2nd semester for two years Master and 5th semester for Master of 3½ years and Bachelor 4 years after obtaining the advice and approval of the HoD / Dean. A CGPA of 2.00 is required for a change of major.

5.9 Attendance:

1. The educational process at the University depends, to a large extent, on regular classes, make-up classes, laboratory work, in-semester tests, and examinations. Failure to attend any of these can influence academic record, or even lead to dropping from the course, award of "F" grade, or expulsion from the University. A student has to fulfill the following requirements:
2. Students must meet the attendance criterion in every course. Students with less than 75% attendance in theory or practical separately of any course, shall not be allowed to sit in the final examination of that particular course in a semester, provided that the period of absence in the case of participation in co-curricular/sports activities outside Karak and performing umra / hajj, with the permission of the Competent Authority, may not be counted.
3. The Vice Chancellor may condone absence from classes upto 40% of the total lectures delivered.
4. Attendance counting shall start from the date of resumption of classes.

5. If a student remains absent for one week continuously from all classes without any intimation his/her admission would be suspended by the department concerned.
6. If a student fails to pay registration renewal fee, his / her name may be deleted from attendance list and will not be allowed to attend classes.
7. Students shall take the required number of quizzes / examinations, complete assignments / projects and fulfill other evaluation criteria set by the University, In case a student joins a course after it has started, he/she will be responsible for any missed quizzes, assignments, and lectures. The marks in missed quizzes will be zero while make-up tests, assignments, projects, and labs can be arranged in consultation with the teacher / head of department.
8. Leave up to seven days in all degree programs shall be granted by the Chairperson/Director/Head of Department on the recommendation of concerned teachers and 15 days by the Dean in verifiable exceptional cases. Maximum leave shall not exceed 22 days per semester. The production of a medical certificate, in support of leave, shall be compulsory for an ailing student. The student will have to satisfy the Chairperson/Director/Head of Department about the genuineness of his/her request.
9. It is the responsibility of the students to be aware of their attendance status at any given time. Attendance status can be checked from course teacher / Students Service Office / University website.
10. The following marks on the basis of attendance percentage above 75% and class participation may be awarded to a student in the Internal Evaluation result:

Attendance / Participation	**Marks**
91-100%	5
81-90%	4
76-80%	3
Below 76 %	0

5.10 Number of Subjects:

At the beginning of the semester the subjects are being identified from Prospectus for each respective semesters which are enlisted on the subject list and verified by the Head

of the Department. The policy for number of subjects to be taken by the student is six (18 Credit Hours).

5.11 Summer:

Summer Semester is planned each year, only those subjects are offered which has to be taken as reappear. No regular subject is allowed to take during summer semester. Summer semester is comprised of 8 weeks having lectures on daily basis, only two subjects are allowed to take by the students during summer semester according to Higher Education Commission Regulation.

5.12 Evaluation of Student Progress Monitoring Procedure;

Student Progress Monitoring is carried out by quantifying the final GPA. The department takes different measures if a student failed to achieve the desired CGPA.

Standard 5-3:

The process of recruiting and retaining highly qualified faculty members must be in place and clearly documented. Also processes and procedures for faculty evaluation, promotion must be consistent with institution mission statement. These processes must be periodically evaluated to ensure that it is meeting with its objectives.

5.13 Faculty Recruitment Policy;

1. Post request to be initiated by the Establishment Section after consultation with the concerned HODs subject to availability/sanction of the post.
2. Advertisement with the conditions and criteria of the posts be floated in national and regional media. At least 15 days be given for submission of application forms.
3. Terms and conditions of advertisement will be as under:

TERMS & CONDITIONS:

a. The applicants should apply only on the prescribed form to be available at the University's website with bank receipt or Demand Draft or online deposit of Rs. 3500 for BPS 20 & 21, Rs. 1000/- for BPS 17 -19, Rs. 500/- for BPS 06-16 and Rs.300/- for BPS 01-05 (Non-refundable), in favour of the Treasurer of this university as application processing fee which will be maintained in the university's Bank Account.
b. The applicants for the post of Professor and Associate Professor should also submit the following documents:
   i. Four Copies of the list of research publications showing names of Publications and Journals.
   ii. Four sets of reprints of the publications
   iii. Four copies of complete bio-data
c. Candidates serving in Govt, Semi-Govt or Autonomous Institutions should route their applications through proper channel.
d. The Applications along with attested copies of all degrees, diplomas, medals/distinction certificates and year-wise detailed marks certificates, experience certificate and 04 Passport Size Photographs should reach to the Registrar Office within 15 days of publishing of advertisement.
e. Age limit to be given as per statutes.
f. The Candidates having Foreign Degree/Certificate will provide Equivalency Certificate from HEC/IBCC, Islamabad.
g. Incomplete applications or received after closing date will not be entertained.
h. Separate application form must be submitted for each post.
i. The University reserves the right to fill all or not to fill any or all post(s) or increase / decrease the post(s) according to requirements/Budgetary Provision.
j. CGPA less than 3.00/4.00 will be considered as 2nd Division.
k. Landline Telephone, Mobile No, Postal and E-mail Address must be written in Application Form.
l. Eligibility in all aspects shall be reckoned upon the closing date of advertisement. The

4. Online application forms be submitted within 15 days of publishing of advertisement.
5. The candidates will be scrutinized both online and manually.
6. There shall be scrutiny committee for the positions advertised who will scrutinize the applications as per given criteria.

7. There shall be an appellate committee of the three senior teachers and Registrar that will decide appeals of the candidates lodged within 15 days after the scrutiny.
8. Eligible candidates (BPS 7- BPS 18) be screened out through testing agency like ETEA, NTS, PTS etc. through competitive biddings.
9. The screening test qualification for BPS 17 and BPS 18 will be 60%, and 50% for BPS 7- to BPS 16. Qualifying marks in demonstration for Lecturers will be 50%. However, the total of screening test and demonstration will not be less than 60%.
10. The GRE/GAT (Subject) test (if any) qualified by 60 % marks is also valid for lecturer post, having validity for the period in which post is advertised, are also be considered as eligible in the screening test.
11. Total marks for quantification will be 100.
12. Quantification will be done up to the qualifying degree required for the post. One step up qualification of the post will be considered as additional qualification.
13. One third division for officials, officers, lecturers and Assistant Professors in any examination right from Matric to Masters/MS/MPhil can be waived off by higher qualification. Similarly 2nd Division in the last exam, if required first division in advertisement for the post, can be relaxed by higher qualification i.e. last required degree (2nd Division or less than 3 CGPA) be given 60% marks or 3 CGPA respectively. One candidate can be given only one relaxation at a time. However, such candidates will not be entitled for additional marks.
14. The distinction marks weightage be given only in the qualifying degree required for the post.
15. The quantification will be accumulated as per following formula:
    a. Obtained marks in SSC+ Intermediate+ BA/BSC+ MA/MSc+MS/MPhil (up to last degree required for a post) divided by total marks of these degrees X (required weightage for the posts like 25, 30, & 40 as prescribed in the evaluation rules of UoP)

    Or

    b. Obtained marks in SSC+ Intermediate+ BS (Honors) +MS/MPhil (upto last degree required for the post) divided by total marks of these degrees X (required weightage for the posts like 25, 30, & 40 as prescribed in the evaluation rules of UoP)
16. In case of CGPA in transcript with obtained marks can be converted into %age by the following formula for quantification.

    (Obtained Marks divided by total marks) X 0.9 X100 and be added to the formula shown in 15 (a) or (b).

    In case the CGPA doesn't show obtained marks then it will be converted into percentage by the given formula:

(Obtained CGPA +1) X 20 X 0.9 and be added to the formula shown in 15 (a) or (b).

17. Relevant experience marks will be awarded up to the prescribed limit as per UoP evaluation rules i.e. 10 and 15 after subtracting the required experience of a post. Six months or more be considered as one year e.g. university teaching or postgraduate college experience, only in relevant subject, be given weightage in lecturers.
18. One negative mark be awarded for each degree in parts or improvement. This will not go beyond 4 marks.
19. Merit lists of short-listed candidates will be uploaded on the University website for 10 days for any query.
20. Marks calculated as grand total are to be converted into whole numbers by deleting less than 0.5 fraction and 0.5 or above be converted into whole number and added to the grand total.
21. Three to five candidates are called for an interview before selection board for one post as per order of merit i.e. academic, distinctions, experience, additional qualification, negative marks (if any) performance in screening test and demonstration.
22. The interview marks be calculated as mean of the total awarded marks divided by Number of selection board members. At least 60 percent marks is qualifying level in the interview e.g. 12 marks out of 20 will be qualifying limit.
23. Fifteen days be given as joining time to the new inductees. The Vice Chancellor has the power to extend joining time by further 30 days in case of genuine reasons as per provision in the S.R. 301, in FR Rules.
24. The offer of appoint will be subject to verification of all documents/degrees.

5.14 Appointments on Tenure Track System

a. Post to be advertised by the University (Existing Faculty may apply without Advertisement)
b. Submission of a comprehensive Application Dossier by the Applicant to the University
c. Applications for Assistant Professor are to be Scrutinized by the University and after scrutiny, the eligible candidates be allowed to appear before selection board of the University.
d. Application for Associate Professor/ Professor are to be sent to Technical Review Panel of foreign experts and in case of Positive Recommendations by at least two TRP members, the case be placed before Selection Board of the University.
e. In case of non-positive report, rejection Letter to be sent to the Applicant.
f. All the applicants to be evaluated as per the HEC criteria given in the Model TTS Process Statutes Version 2.0 January 1, 2008, in the following areas:

1. Teaching 2. Scholarship, research, or other creative work 3. Service 4. Personal characteristics

5.15 Highly qualified faculty member's retaining Policy;

Khushal Khan Khattak University, Karak is committed to retain and develop outstanding faculty who are committed to the mission of the University. To achieve this goal, the following strategies have been devised;

- Ensuring that University provides fair, timely selection, appointment/promotion process with HEC criteria.
- Hard area allowance, a better incentive/attractive salary package and excellent working environment.
- Giving priority to faculty development through training and support.
- The university is paying Ph.D allowance to all Ph.D holders in different fields.

5.16 Faculty evaluation, promotion Procedure;

Basic Pay Scale (BPS)

The Higher Education Commission (HEC) has decided to finalize the eligibility conditions under BPS for the appointment and promotion of faculty members in the Universities.

a. Lecturer (BPS- 18):

First Class Master's Degree/B.Sc (Engr) or Second Class Master's degree with M.Phil or equivalent degree awarded after 16 Year of education in the relevant field with no 3rd Division in the academic career, from HEC recognized University/Institution. Provided that the candidate holding higher degrees viz. M.Phil/Ph.D or equivalent degree but with only one 3rd division in entire academic career shall also be eligible.

Provided further that benefit of higher degree viz in M.Phil/Ph.D or equivalent degree shall not be allowed to the candidates who are eligible on the basis of higher qualification.

b. Assistant Professor (BPS- 19):

Ph.D in the relevant field from HEC recognized University/Institution. No experience is required

OR

Master Degree (Foreign) or M.Phil/MS (Pakistan) or equivalent degree awarded after 18 Year of education as determined by the HEC in the relevant field from HEC recognized University/Institution, plus required teaching/research experience in HEC recognized University or a post graduate institution or the professional experience in the relevant field in a National or International organization.

c. Associate Professor (BPS- 20)

Ph.D in the relevant field from HEC recognized University /Institution plus 10 (Ten) Year Teaching/Research experience in an HEC recognized University or a post graduate institution or professional experience in the relevant field in a National or International organization, plus 10 (ten) research publications(with at least 04(four) publications in the last 5 Year) in internationally abstracted Journals recognized by the HEC, OR

04(Four) Year post Ph.D Teaching/Research experience in HEC recognized University or a Post Graduate Institution or Professional experience in the relevant field in a National or International Organization, Plus 10 research Publications(with at last 4(four) Publications in the last five Year) in HEC recognized journals.

d. Professor (BPS-21)

Ph.D in the relevant field from HEC recognized University /Institution plus 15 (fifteen) Year Teaching/Research experience in HEC recognized University or a post graduate institution or professional experience in the relevant field in a National or International organization, plus 15 (fifteen) research publications(with at least 05(five) publications in the last 5 Year in internationally abstracted Journals recognized by the HEC, OR

8(Eight) Year post Ph.D Teaching/Research experience in HEC recognized University or a Post Graduate Institution or Professional experience in the relevant field in a National or International Organization, Plus 15 research Publications(with at last 5(five) Publications in the last five Year) in HEC recognized journals.

Faculty Evaluation

The Annual Confidential Report (ACR) [Performance Evaluation Report (PER)] is an important document pertaining to the professional profile of the faculty. ACR is essential for career

development and promotions are based on the comments of the reporting and countersigning officers.

Standard 5-4:

The process and procedures used to ensure that teaching and delivery of course material to the students emphasizes active learning and that course learning outcomes are met. The process must be periodically evaluated to ensure that it is meeting its objectives.

5.17 The process and procedures used to ensure that teaching of course material is effective and focus on students learning.

- A list of courses is approved by the Board of Studies as per HEC criteria.
- It is ensured each faculty member is assigned the workload approximately evenly.
- A file containing the course objectives and outlines is provided to the faculty member.
- Each faculty member prepares the course folder which contains Attendance Record, Time Table, Course Contents, Record of Assignments, Record of Quizzes, and Record of Examination
- The Head of Department also keep an eye on attendance of students on monthly basis.
- He makes sure that a Make Up class must be announced and taken in case of absence of a faculty member.
- A list of short attendance is also prepared by each faculty member and communicated to program HoD each month.
- The HoD announces the short attendance students through notice board.
- The students who fail to improve the attendance are barred from sitting in exam of respective course.

5.18 Faculty course plans for the term;

Faculty members prepare a course file comprises of course plan. The course plan includes weekly breakup, lab/teaching tools, grading policy, Quizzes and assignments.

5.19 Course information delivery to students;

In very first lecture, the course introduction is provided to students. Introduction comprises of course objectives, course contents, marks distribution, credit hours, and schedule for mid and final exam.

5.20 Student evaluation;

Students are evaluated through attendance, assignments, quizzes, class presentations, class tests, mid-semester and final semester examinations. The weightage of each module is communicated to students by the teacher in the first class.

- For theory-based course weight-age of marks is 50% final exam, 20% sessional, and 30% mid-term.
- For lab-based course weight-age of marks is 50% final exam, 20% sessional, and 30% mid-term.

5.21 The process and procedures used to ensure that delivery of course material is effective and focus on students learning.

The quality of delivering course material is maintained using the latest technologies within classrooms such as multimedia, computer animations, and etc.

Standard 5-5:

The process that ensures that graduates have completed the requirements of the program must be based on standards, effective and clearly documented procedures. This process must be periodically evaluated to ensure that it is meeting its objectives.

5.22 Evaluation of Thesis/Project:

1. Both synopsis and thesis/project report shall have approval of the departmental committee.
2. The thesis/project report shall be evaluated by an External Examiner(s) and Supervisor(s).
3. The student shall give a seminar on his/her thesis/project report before viva-voce examination, where required.

4. The date, time, and venue of examination shall be notified at least one week before the commencement and the faculty and students interested to participate in the oral presentation may be allowed. The notification to this effect may be made by the Head of Department / Chairman / Director of Institute / Controller of Examinations.

5. The Controller of Examinations shall get the thesis/project report evaluated within two months after the date of submission / resubmission of thesis/project report in his Office. Any delay beyond two months shall be brought to the notice of the Vice Chancellor.

6. The thesis/project report shall be evaluated according to the following numerical and letter grades:

a. The thesis shall be graded in percentage of marks.

b. The marks so awarded shall be converted into letter grades by the prescribed formula, which shall be A+, A, B+, B, C+, C or F (fail), as the case may be. Average grade on the basis of course work and thesis shall then be worked out to calculate the final CGPA.

c. Both the Examiner / Supervisor shall sign the thesis/project report after the Viva-Voce Examination, after making necessary corrections and incorporating therein, any suggestions by the Examiners/Supervisor.

d. Both the Examiner / Supervisor shall sign the result sheet prescribed for this purpose at the end of the examination. The supervisor will submit the result to the Controller of Examinations.

f. In case of disagreement among the Examiner / Supervisor regarding the acceptance of the thesis/project report, it shall be referred to a third External Examiner, appointed by the Vice Chancellor, whose decision shall be final.

g. Thesis evaluation fee will be paid by each student.

5.23 Project / Research and Research Work:

1. The synopsis approved for thesis / project research shall remain valid only for two semesters. The Vice Chancellor may extend this period on case-to-case basis.

2. A student admitted to the course in partial residence shall undertake research/project work in a laboratory or institute approved by the Board of Advance Studies and Research.

5.24 Failure in Thesis Examination / Submission:

1. If a candidate fails in the thesis/project report examination, he/she may enroll again and submit a revised thesis/project report on payment of the prescribed examination fee but he/she shall not be entitled to resubmit his thesis/project report before the expiry of six months after the date of declaration of the result of the last thesis/project report examination. He/She can avail of this chance only once.
2. If a student fails to submit his project / thesis on or before prescribed date, he/she shall be granted incomplete grade (I).
3. A student who gets an "I" grade in the project/thesis shall register himself again in the next semester by paying the registration fee until the project/thesis is completed.

5.25 Requirement for Award of Degree:

1. It is the responsibility of each student to fulfill the following graduation requirements:
2. The student has earned the requisite credit hours of the degree program.
3. The student's CGPA on the scale of 4.0 is not less than:
   a. Bachelor / Master = 2.0
   b. M. Phil / M.S. = 2.5
   c. Ph. D = 3.0
4. The student has passed all the core, supporting and compulsory courses of the degree program.
5. The student has met his financial and material obligations towards the university and there is nothing outstanding against him.
6. The student produces clearance certificates from all concerned departments and sections.

5.26 Award of Degree:

1. A candidate who passes all the examinations with the prescribed CGPA shall be awarded degree which shall be conferred on him at the subsequent convocation, which is normally held annually.
2. It is mandatory for all students to pay convocation fee and be present at the occasion.

3. The Controller of Examinations will issue Provisional Certificate till issuance of final degree.
4. The character certificate to students will be issued by the Head of the concerned department.

5.27 Project / Research and Research Work:

1. The synopsis approved for thesis / project research shall remain valid only for two semesters. The Vice Chancellor may extend this period on case-to-case basis.
2. A student admitted to the course in partial residence shall undertake research/project work in a laboratory or institute approved by the Board of Advance Studies and Research.

5.28 Failure in Thesis Examination / Submission:

1. If a candidate fails in the thesis/project report examination, he/she may enroll again and submit a revised thesis/project report on payment of the prescribed examination fee, but he/she shall not be entitled to resubmit his thesis/project report before the expiry of six months after the date of declaration of the result of the last thesis/project report examination. He/She can avail of this chance only once.
2. If a student fails to submit his project / thesis on or before prescribed date, he/she shall be granted incomplete grade (I).
3. A student who gets an "I" grade in the project/thesis shall register himself again in the next semester by paying the registration fee until the project/thesis is completed.

Section 6

Criterion 6

Faculty

Currently Department of Computer Science and Bio-Informatics has full time 8 qualified faculty total in numbers according to the needs of curriculum designed by HEC. The department has always tried its best to recruit, retain and satisfy high quality faculty with it.

Standard 6-1:

There must be enough full time faculty who is committed to the program to provide adequate coverage of the program areas/courses with continuity and stability. The interests and qualifications of all faculty members must be sufficient to teach all courses, plan, modify and update courses and curricula. All faculty members must have a level of competence that would normally be obtained through graduate work in the discipline. The majority of the faculty must hold a Ph.D. in the discipline.

To ensure fully presence of the faculty in all areas of Computer Science, qualified faculty is hired by the university as per requirement. The qualification and interests of all the faculty members are according to the courses designed and provided by board of studies. Courses are reviewed during BoS to satisfy the requirements for quality education regulated by HEC.

Faculty qualification and designation is mentioned below.

1. **Dr.Muhammad Inam Ul Haq**
   Designation: Head of Department
   Qualification: Ph.D. Lab Hubert Curien, Jean Monnet University, Saint Etienne France. 2013.
   Research Interest: Image Processing, Texture Evaluation and Classifications, Computer/machine vision, Computer Networks, e-learning, e-management.

2. **Dr. Abdul Aziz**
   Designation: Assistant Professor
   Qualification: M. Phil, Ph.D.(Biochemistry/Molecular Biology) Quaid-i-Azam University Islamabad
   Research Interest: Human Molecular Genetics, Genoptyping and sequencing
   Phone#+92-302-5363053
   Email, aziz_qau85@yahoo.com, abdul.aziz@kkkuk.edu.pk

3. **Dr. Noor Ul Haq**
   Designation: Assistant Professor

Qualification: M.Phil, PhD (Biochemistry/Molecular Biology: Quaid-i-Azam University Islamabad, 2013)
Post-Doc: CAS-MPG Partner Institute of Computational Biology, Shanghai Institute for Biological Sciences, Shanghai, China
Research Interest: Plants Molecular Biology, Photosynthesis Evolution
Email: noorulhaq@kkkuk.edu.pk, noorqu@gmail.com

4. **Dr. Muhammad Zubair**
   Designation: Assistant Professor/Director ORIC
   Qualification: PhD, School of Information and Communication Engineering, Dalian University of Technology, China
   Research Interest: Wireless Communication, Future Networks, Mobile Networks, Next Generation Networks, Social Networks, Bio-Inspired Networks

5. **Dr. Siddiq Ur Rahman**
   Designation: Assistant Professor
   Qualification: M. Phil, Ph.D.(Bioinformatics) Northwest A&F University, China
   Research Interest: Host Pathogen Interaction, Using bioinformatics tools for unknown pathogen discovery and evolutionary study, Investigating functions of mRNA secondary structure and codon usage bias during translation elongation.
   Phone#+92-345-9117731
   Email, siddiqbiotec88@gmail.com, siddiqur.rahman@kkkuk.edu.pk

6. **Tariq Usman**
   Designation: Lecturer
   Qualification: PhD (Computer Science)
   MS (Computer Science) Iqra University Karachi
   Research Interest: VANET, Wireless sensor Networks (WSN), IoT, social Network, BAN

7. **Ghani-Ur-Rehman**
   Designation: Lecturer
   Qualification: MS (Computer Science) IIU Islamabad
   PhD in progress
   Research Interest: Next Generation Network, Future Internet. IoT, Social Network

8. **Shad Muhammad**
   Designation: Lecturer
   Qualification: MS (Computer Science) London Metropolitan University London
   PhD in progress
   Research Interest: Mobile ad-hoc networks, IoT, social Network, BAN

Faculty Resume are attached as Annexure IV.

Note: Visiting faculty is hired for the following courses

1. Bioinformatics Core and General Courses
2. Mathematics
3. Physics
4. Pakistan Studies
5. Islamic Studies
6. Management Sciences courses
7. Economics
8. Marketing
9. Electronics

And etc.

Standard 6-2:

All faculty members must remain current in the discipline and sufficient time must be provided for scholarly activities and professional development. Also, effective programs for faculty development must be in place.

Many of faculty members in Department of Computer Science and Bio-Informatics are currently enrolled in PhD. Those faculty members who are enrolled in PhD program in different universities of Pakistan are facilitated in terms of their academic responsibilities at the department according to their scheduled classes. In order to retain and develop faculty professionally in academic different seminars are arranged by the University and department to enhance their approach and level of understanding towards computer science discipline.

As soon as papers are been called from different universities around the Pakistan, department make sure that our faculty has fully participation in their respective discipline/are of research.

No. of Journal Papers	No. of Conference Papers	No. of Books/Books chapters
14	01	01

No. of Seminars conducted in Department in 2022	02
No. of Conferences/Events attended by the delegation from department	04
No. of curricular and extracurricular events by institution	9

Standard 6-2(b)

Describe the criteria for faculty to be deemed current 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.

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

- The faculty member is given relaxation, regarding time and work load to attend his/her classes inside the campus or outside the campus.
- The faculty member is provided registration fees and traveling charges if he/she wants to attend any training within country.

6.2 Describe existing faculty development programs at the departmental and university level.

- Seminars by highly qualified scholars are conducted on monthly basis.
- Workshops are been organized by the university according to HEC guidelines.
- Faculty members are nominated for each workshop conducted by the university and their presence is mandatory.

6.3 Demonstrate their effectiveness in achieving faculty development.

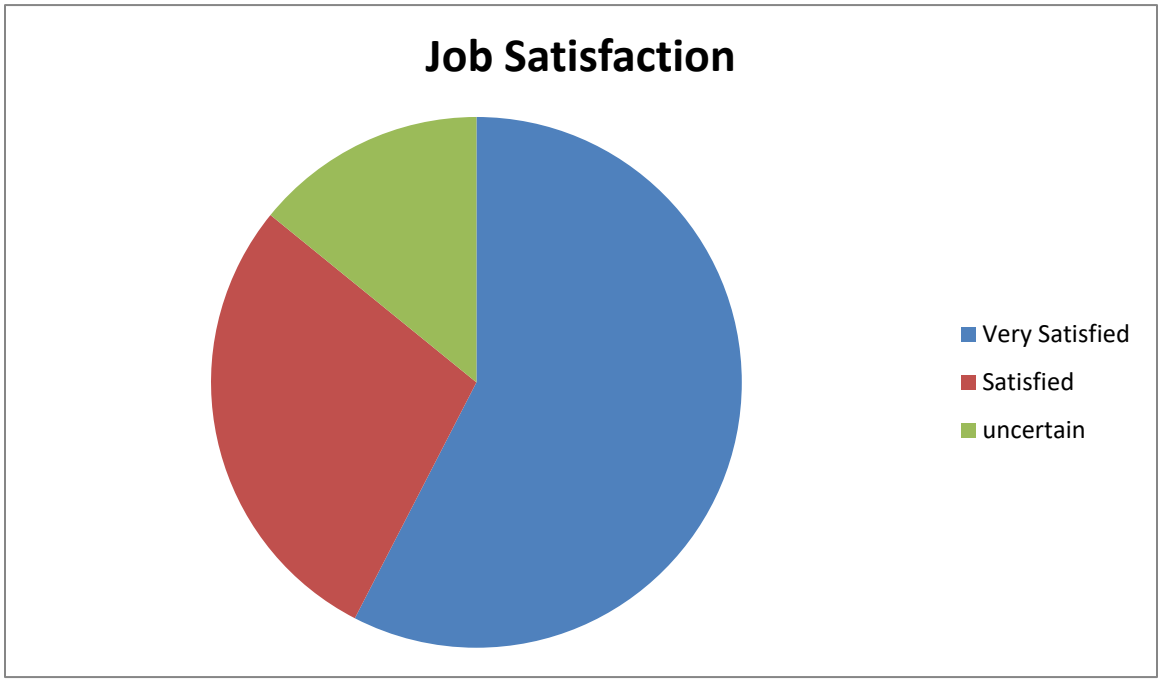
With the help of faculty development, the faculty members are able to demonstrate their abilities in terms of qualification improvement, promotion, research and development, quality of teaching.

Standard 6-3:

All faculty members should be motivated and have job satisfaction to excel in their profession.

It is pleasant to note that majority of faculty members of Department of Computer Science and Bioinformatics has shown their satisfaction.

	Very Satisfied	Satisfied	Uncertain	Not Satisfied	Very Dissatisfied
	%age	%age	%age	%age	%age
Average Satisfaction %age	57.14	28.57	14.28	0	0



A majority of faculty is very satisfied or satisfied.

Section 7

Criterion 7

Institutional Facilities

This criterion describes the facilities provided by institution such as library, classrooms and offices. Several standards are discussed to meet the program objectives through these facilities.

Standard 7-1:

The institution must have the infrastructure to support new trends in learning such as E-learning.

1. KKKUK is in progress to establish PERN network of HEC.
2. A video conference room is ready to facilitate local and international webinars.
3. University has PERN internet of 100 MB and these networks provided by the university.

Standard 7-2:

The library must possess an up-to-date technical collection relevant to the program and must be adequately staffed with professional personnel.

A well-managed central library has been setup at main campus to keep updated the students and faculty members with the latest trends in different Discipline. A qualified librarian with a well-trained supporting staff is responsible to manage the library in an efficient manner. Approximately 14200 books have been stocked in library.

Library provides support in enhancing the technical knowledge of the students.

Standard 7-3:

Class-rooms must be adequately equipped and offices must be adequate to enable faculty to carry out their responsibilities.

Classrooms are not equipped with multimedia facilities. Additionally, the faculty offices are not equipped with adequate resources to accomplish their job responsibilities in efficient manner.

Section 8

Criterion 8

Institutional Support

Khushal Khan Khattak University, Karak is making best efforts to provide adequate resources to the faculty, library, and laboratories and computing facilities. The following standards explain these resources.

Standard 8-1:

There must be sufficient support and financial resources to attract and retain high quality faculty and provide the means for them to maintain competence as teachers and scholars.

Already discussed in Sections 5-3 and 6-3

Adequate budget is sanctioned each year for research and development, faculty development program, books and research journals for library, to enhance the teachers' and scholars' competency as mentioned below.

Standard 8-2:

There must be an adequate number of high quality graduate students, research assistants and Ph.D. students.

Semester	No. of Students			
	BS	M.S	Research Assistant	PhD
1st	28	06	-	-
3rd	26	-	-	-
5th	11			
7th	29			
Total	94	06		

Standard 8-2:

Financial resources must be provided to acquire and maintain Library holdings, Laboratories and Computing facilities.

Library

Describe the resources available for the library.

- A well-managed central library has been setup having Bioinformatics related books at main campus to keep updated the students and faculty members.

Laboratory

Describe the resources available for the laboratories.

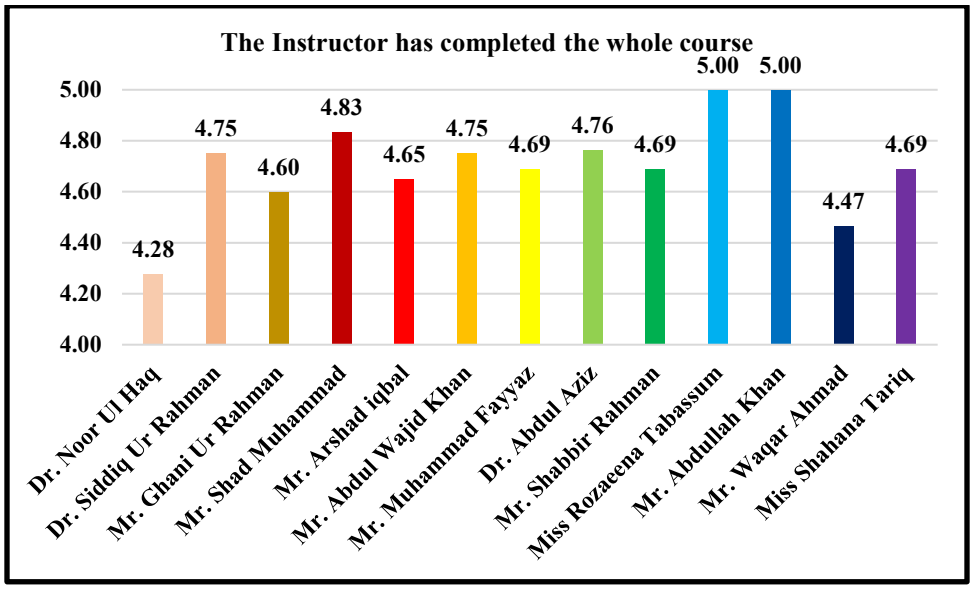
- Currently department has one each computer and Molecular Biology lab and the other one is in the completion stage.
- Department still needs hardware and research labs.

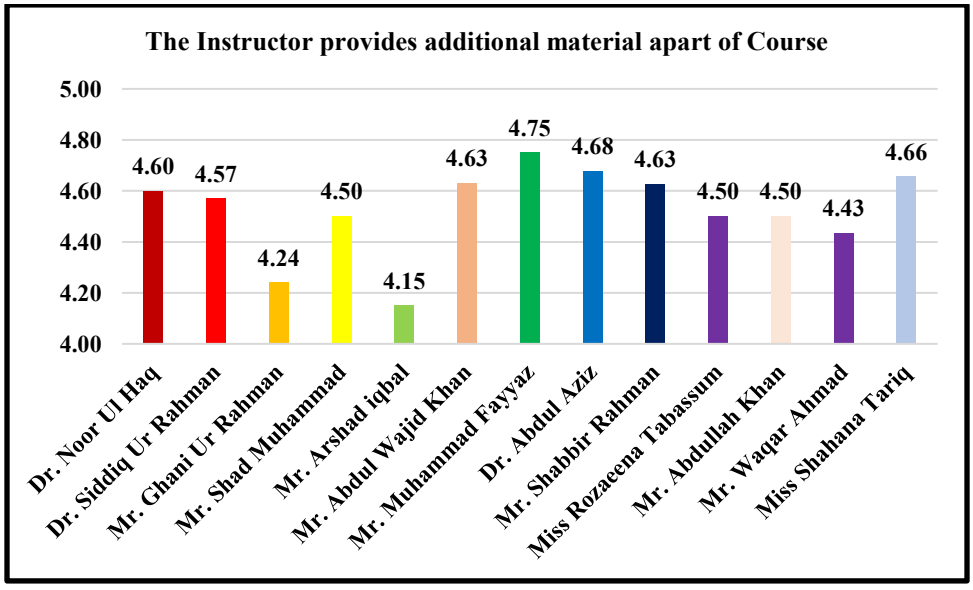
Computing Facilities

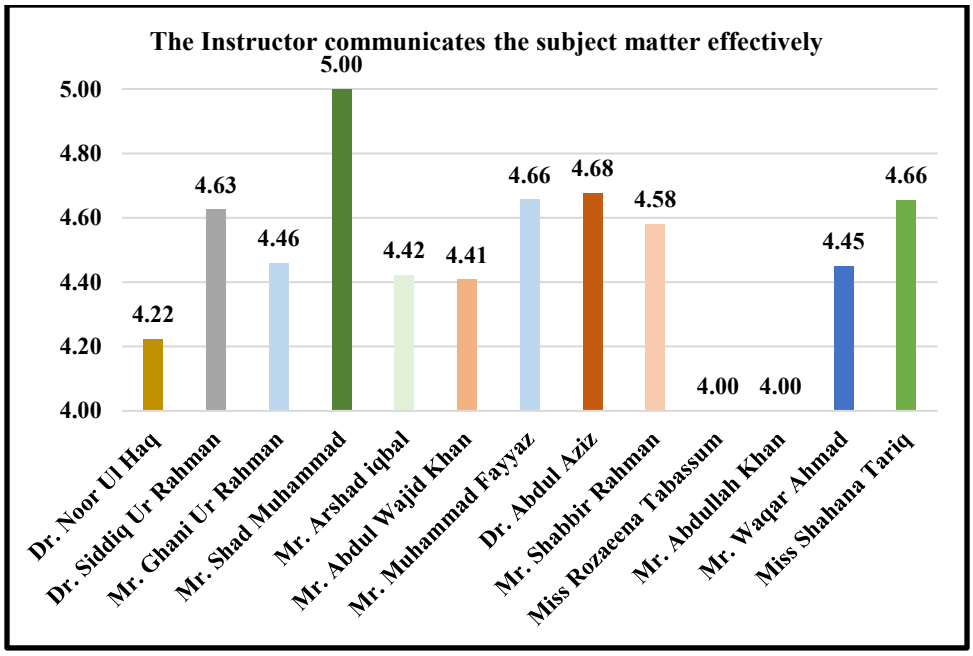
Describe the resources available for computing facilities.

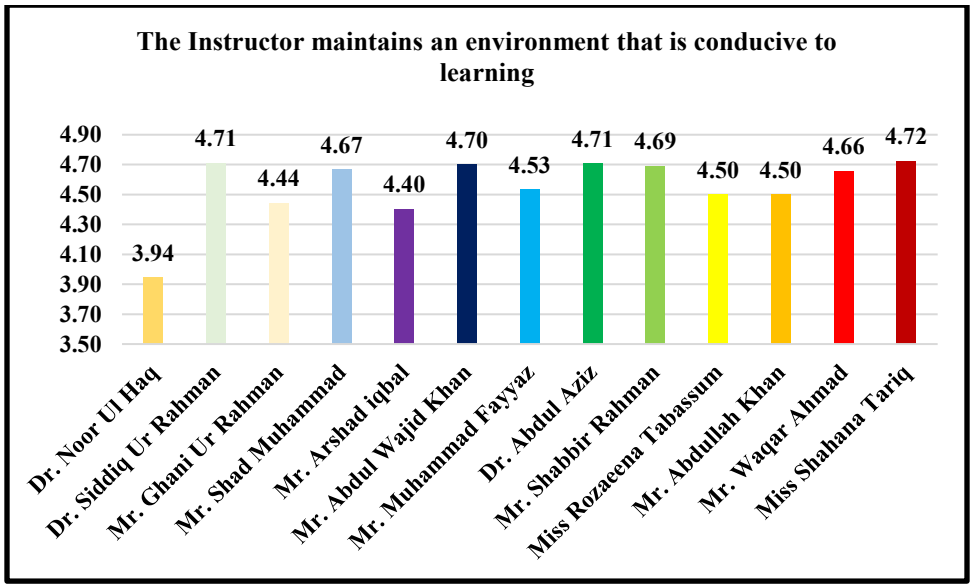
- The existing computer lab in department has 30 computer system and Internet facility.

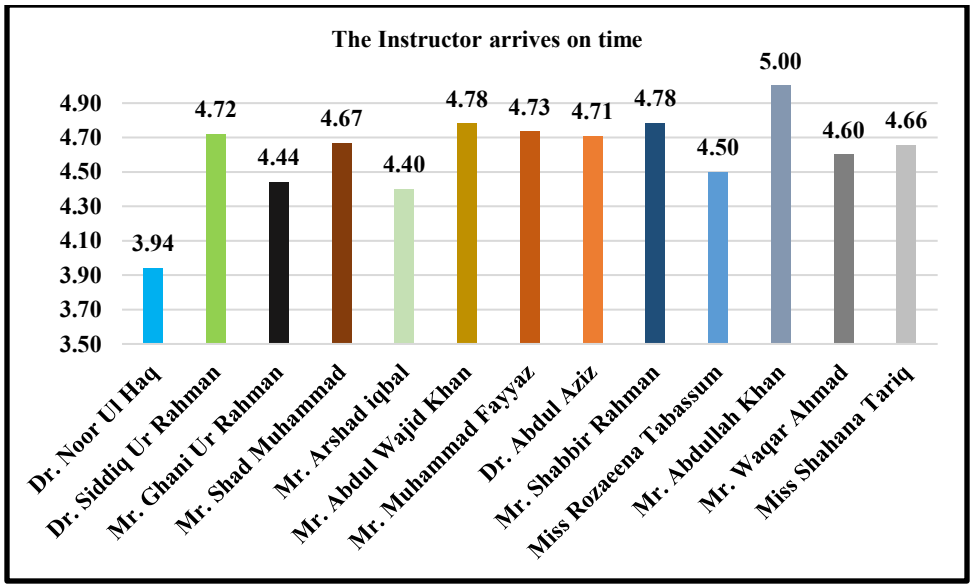
Annexure I: Students Evaluation (Subject and Faculty Wise)

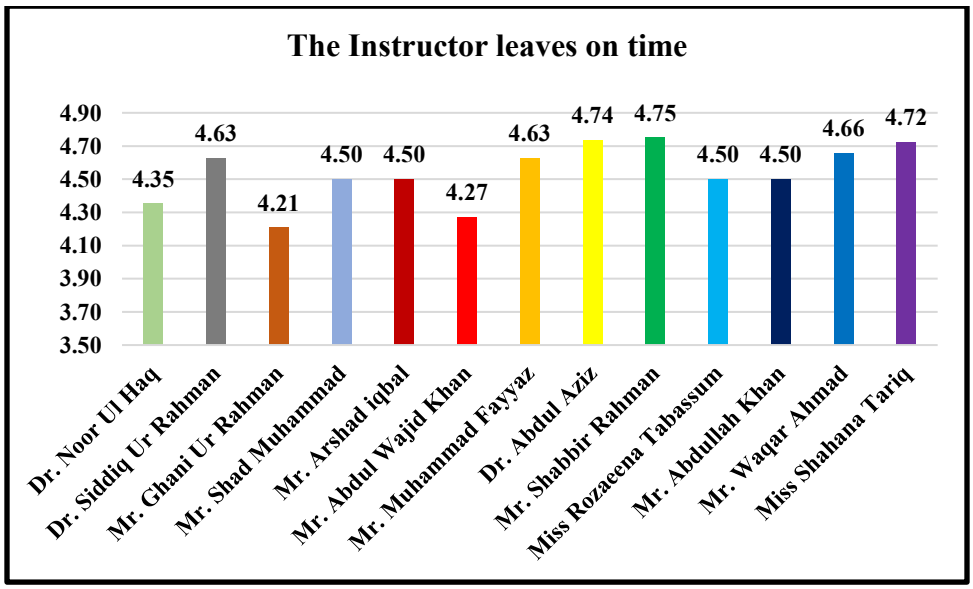


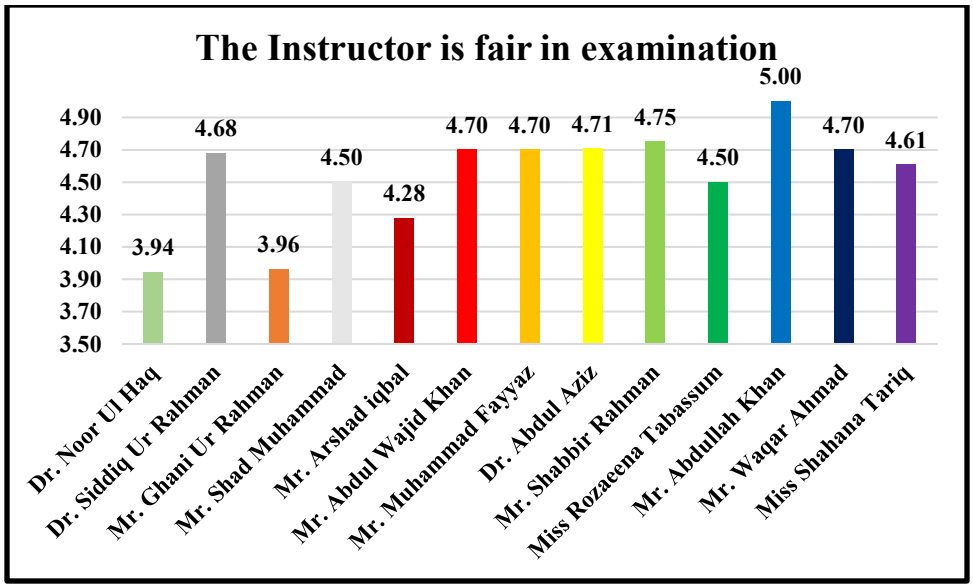


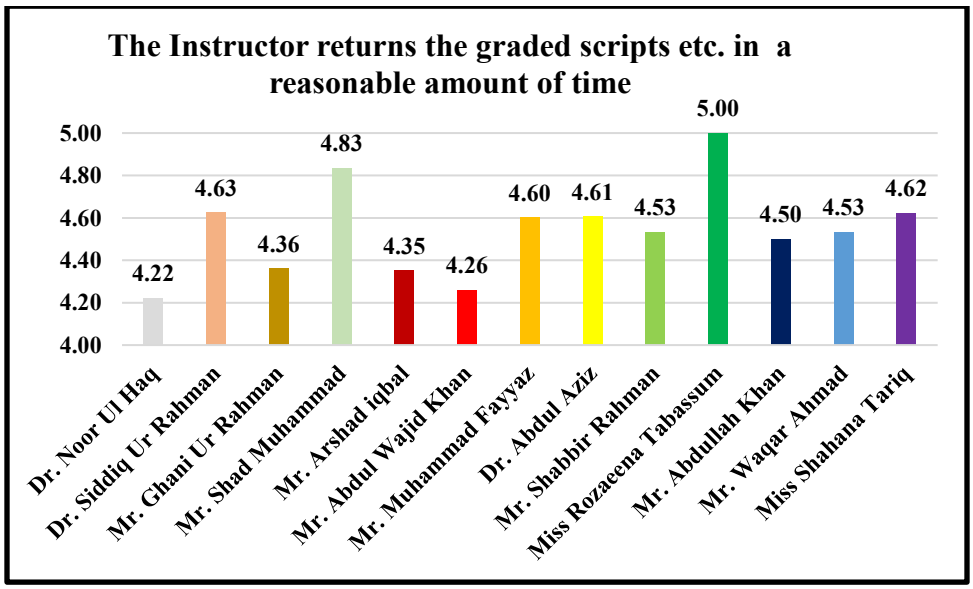

The Instructor communicates the subject matter effectively
5.00
4.80
4.60
4.40
4.20
4.00
4.22
4.63
4.46
5.00
4.42
4.41
4.66
4.68
4.58
4.00
4.00
4.45
4.66
Dr. Noor Ul Haq
Dr. Siddiq Ur Rahman
Mr. Ghani Ur Rahman
Mr. Shad Muhammad
Mr. Arshad iqbal
Mr. Abdul Wajid Khan
Mr. Muhammad Fayyaz
Dr. Abdul Aziz
Mr. Shabbir Rahman
Miss Rozaeena Tabassum
Mr. Abdullah Khan
Mr. Waqar Ahmad
Miss Shahana Tariq

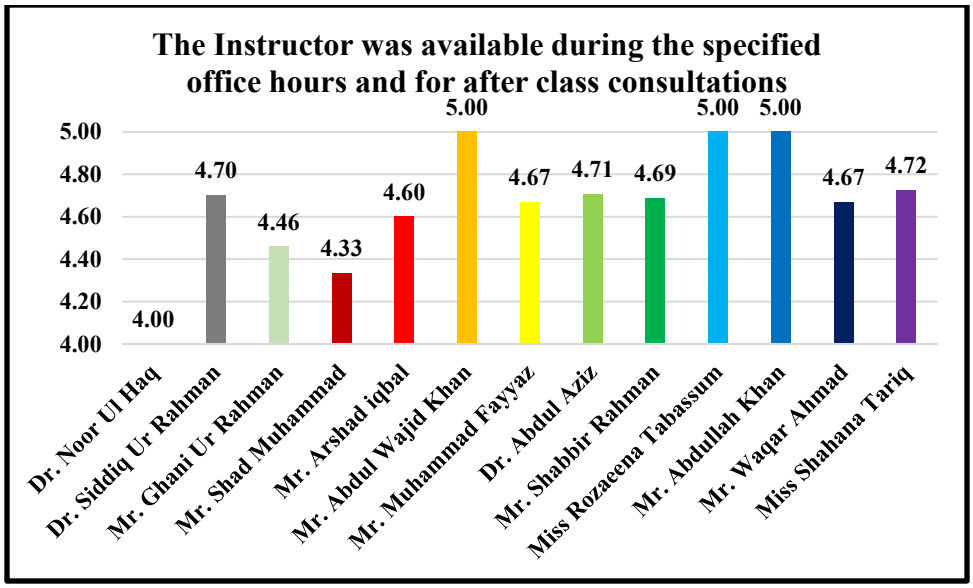

The Instructor maintains an environment that is conducive to learning
4.90
4.70
4.50
4.30
4.10
3.90
3.70
3.50
3.94
4.71
4.44
4.67
4.40
4.70
4.53
4.71
4.69
4.50
4.50
4.66
4.72
Dr. Noor Ul Haq
Dr. Siddiq Ur Rahman
Mr. Ghani Ur Rahman
Mr. Shad Muhammad
Mr. Arshad iqbal
Mr. Abdul Wajid Khan
Mr. Muhammad Fayyaz
Dr. Abdul Aziz
Mr. Shabbir Rahman
Miss Rozaeena Tabassum
Mr. Abdullah Khan
Mr. Waqar Ahmad
Miss Shahana Tariq

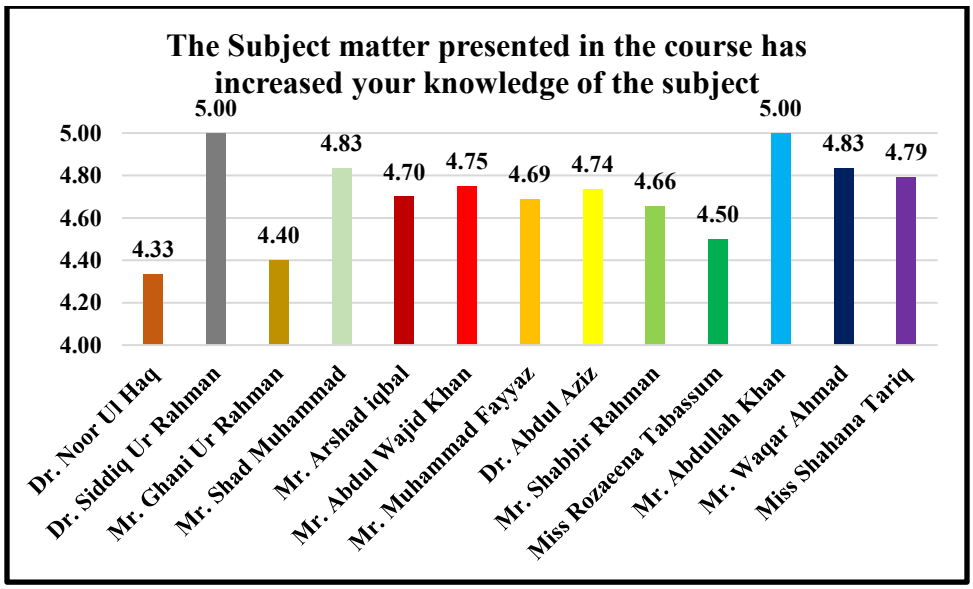

The Instructor arrives on time
4.90
4.70
4.50
4.30
4.10
3.90
3.70
3.50
3.94
4.72
4.44
4.67
4.40
4.78
4.73
4.71
4.78
4.50
5.00
4.60
4.66
Dr. Noor Ul Haq
Dr. Siddiq Ur Rahman
Mr. Ghani Ur Rahman
Mr. Shad Muhammad
Mr. Arshad iqbal
Mr. Abdul Wajid Khan
Mr. Muhammad Fayyaz
Dr. Abdul Aziz
Mr. Shabbir Rahman
Miss Rozaeena Tabassum
Mr. Abdullah Khan
Mr. Waqar Ahmad
Miss Shahana Tariq

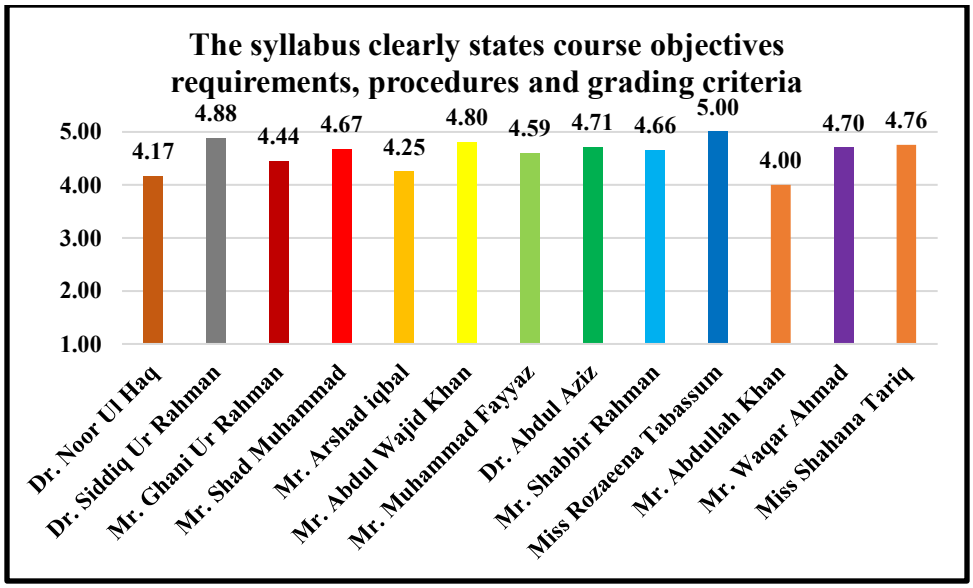

The Instructor leaves on time
4.90
4.70
4.50
4.30
4.10
3.90
3.70
3.50
4.35
4.63
4.21
4.50
4.50
4.27
4.63
4.74
4.75
4.50
4.50
4.66
4.72
Dr. Noor Ul Haq
Dr. Siddiq Ur Rahman
Mr. Ghani Ur Rahman
Mr. Shad Muhammad
Mr. Arshad iqbal
Mr. Abdul Wajid Khan
Mr. Muhammad Fayyaz
Dr. Abdul Aziz
Mr. Shabbir Rahman
Miss Rozaeena Tabassum
Mr. Abdullah Khan
Mr. Waqar Ahmad
Miss Shahana Tariq

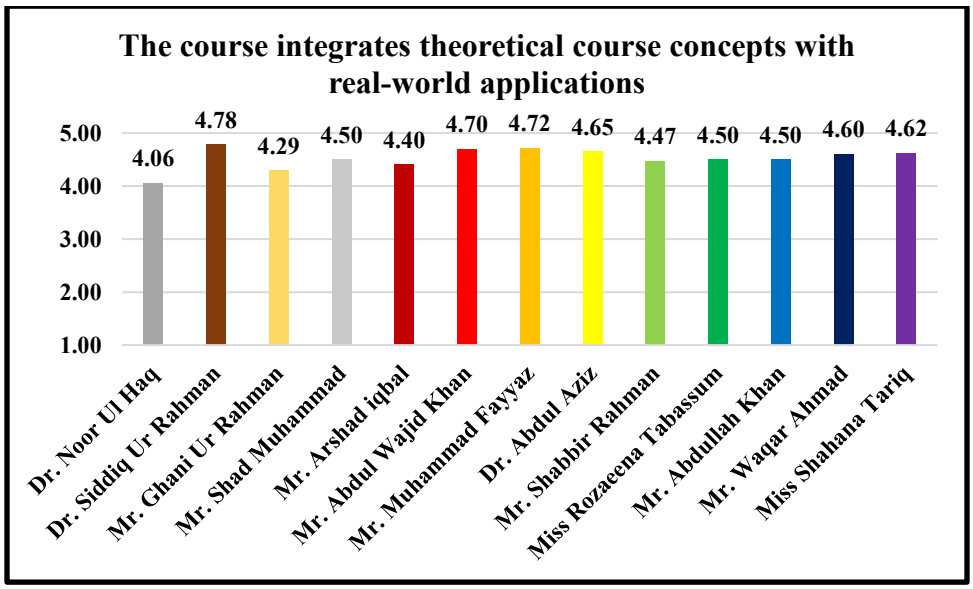

The Instructor is fair in examination
4.90
4.70
4.50
4.30
4.10
3.90
3.70
3.50
3.94
4.68
3.96
4.50
4.28
4.70
4.70
4.71
4.75
4.50
5.00
4.70
4.61
Dr. Noor Ul Haq
Dr. Siddiq Ur Rahman
Mr. Ghani Ur Rahman
Mr. Shad Muhammad
Mr. Arshad iqbal
Mr. Abdul Wajid Khan
Mr. Muhammad Fayyaz
Dr. Abdul Aziz
Mr. Shabbir Rahman
Miss Rozaeena Tabassum
Mr. Abdullah Khan
Mr. Waqar Ahmad
Miss Shahana Tariq

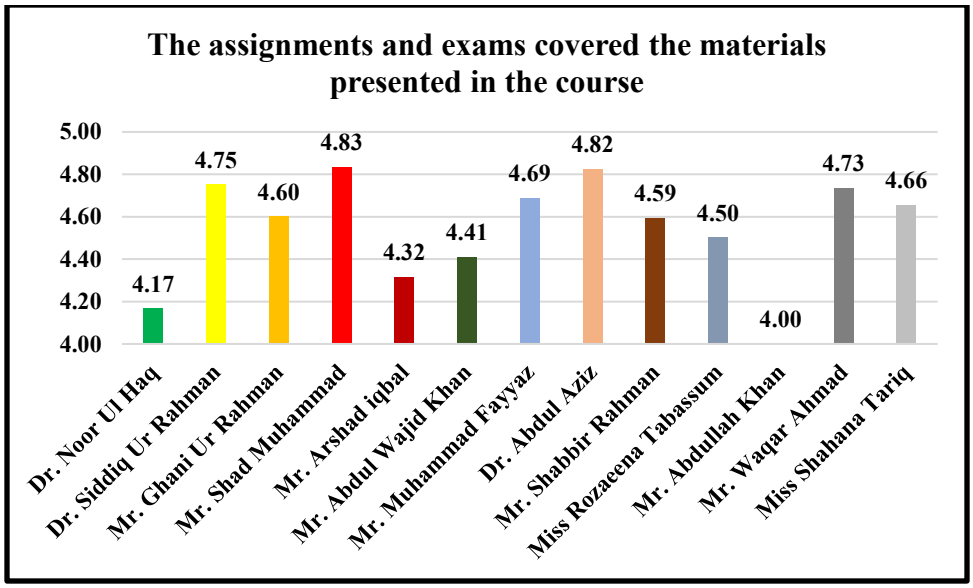

The Instructor returns the graded scripts etc. in a reasonable amount of time
5.00
4.80
4.60
4.40
4.20
4.00
4.22
4.63
4.36
4.83
4.35
4.26
4.60
4.61
4.53
5.00
4.50
4.53
4.62
Dr. Noor Ul Haq
Dr. Siddiq Ur Rahman
Mr. Ghani Ur Rahman
Mr. Shad Muhammad
Mr. Arshad iqbal
Mr. Abdul Wajid Khan
Mr. Muhammad Fayyaz
Dr. Abdul Aziz
Mr. Shabbir Rahman
Miss Rozaeena Tabassum
Mr. Abdullah Khan
Mr. Waqar Ahmad
Miss Shahana Tariq

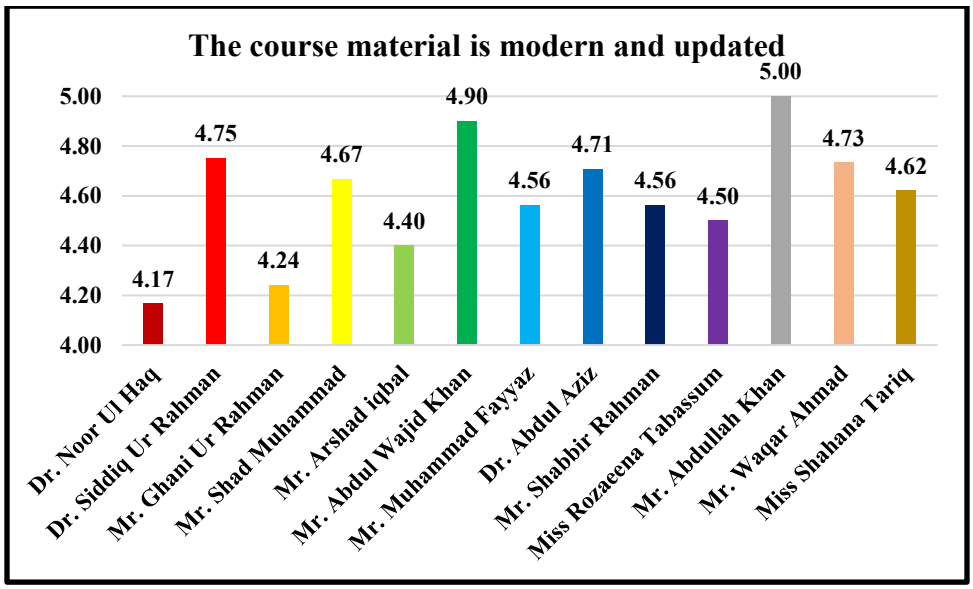

The Instructor was available during the specified office hours and for after class consultations
5.00
4.80
4.60
4.40
4.20
4.00
4.00
4.70
4.46
4.33
4.60
5.00
4.67
4.71
4.69
5.00
5.00
4.67
4.72
Dr. Noor Ul Haq
Dr. Siddiq Ur Rahman
Mr. Ghani Ur Rahman
Mr. Shad Muhammad
Mr. Arshad iqbal
Mr. Abdul Wajid Khan
Mr. Muhammad Fayyaz
Dr. Abdul Aziz
Mr. Shabbir Rahman
Miss Rozaeena Tabassum
Mr. Abdullah Khan
Mr. Waqar Ahmad
Miss Shahana Tariq

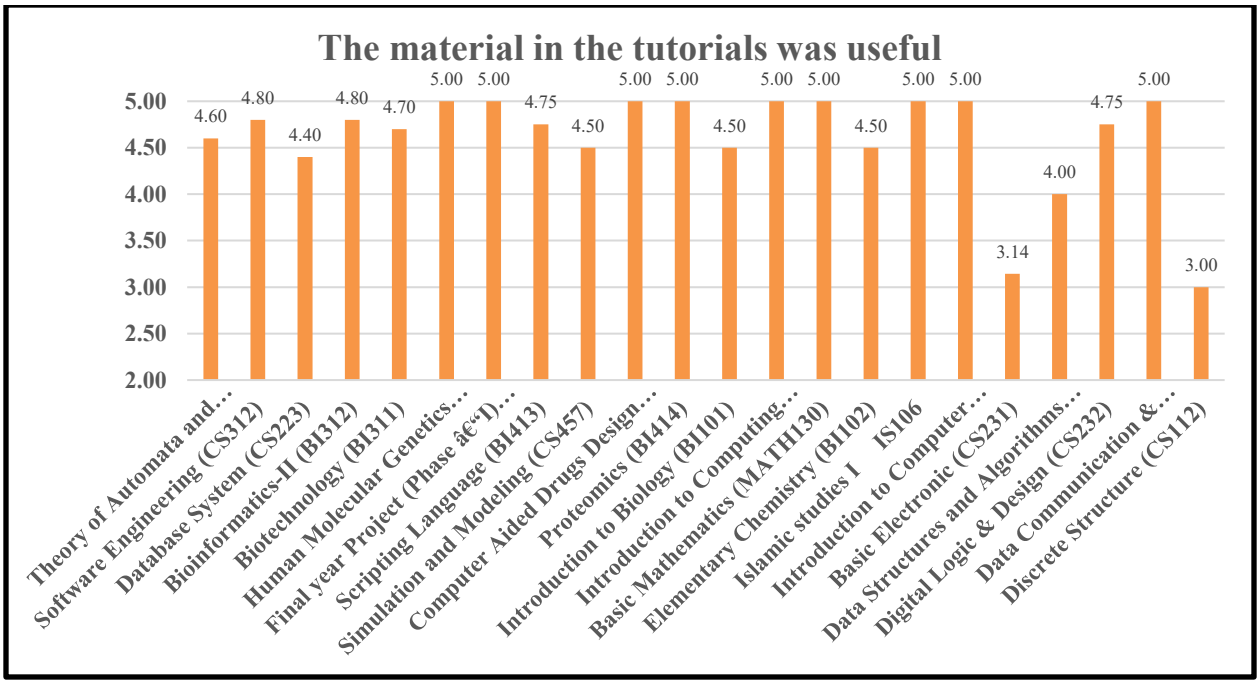

The Subject matter presented in the course has increased your knowledge of the subject
5.00
4.80
4.60
4.40
4.20
4.00
4.33
5.00
4.40
4.83
4.70
4.75
4.69
4.74
4.66
4.50
5.00
4.83
4.79
Dr. Noor Ul Haq
Dr. Siddiq Ur Rahman
Mr. Ghani Ur Rahman
Mr. Shad Muhammad
Mr. Arshad iqbal
Mr. Abdul Wajid Khan
Mr. Muhammad Fayyaz
Dr. Abdul Aziz
Mr. Shabbir Rahman
Miss Rozaeena Tabassum
Mr. Abdullah Khan
Mr. Waqar Ahmad
Miss Shahana Tariq


The syllabus clearly states course objectives requirements, procedures and grading criteria
5.00
4.00
3.00
2.00
1.00
4.17
4.88
4.44
4.67
4.25
4.80
4.59
4.71
4.66
5.00
4.00
4.70
4.76
Dr. Noor Ul Haq
Dr. Siddiq Ur Rahman
Mr. Ghani Ur Rahman
Mr. Shad Muhammad
Mr. Arshad iqbal
Mr. Abdul Wajid Khan
Mr. Muhammad Fayyaz
Dr. Abdul Aziz
Mr. Shabbir Rahman
Miss Rozaeena Tabassum
Mr. Abdullah Khan
Mr. Waqar Ahmad
Miss Shahana Tariq


The course integrates theoretical course concepts with real-world applications
5.00
4.00
3.00
2.00
1.00
4.06
4.78
4.29
4.50
4.40
4.70
4.72
4.65
4.47
4.50
4.50
4.60
4.62
Dr. Noor Ul Haq
Dr. Siddiq Ur Rahman
Mr. Ghani Ur Rahman
Mr. Shad Muhammad
Mr. Arshad iqbal
Mr. Abdul Wajid Khan
Mr. Muhammad Fayyaz
Dr. Abdul Aziz
Mr. Shabbir Rahman
Miss Rozaeena Tabassum
Mr. Abdullah Khan
Mr. Waqar Ahmad
Miss Shahana Tariq


The assignments and exams covered the materials presented in the course
5.00
4.80
4.60
4.40
4.20
4.00
4.17
4.75
4.60
4.83
4.32
4.41
4.69
4.82
4.59
4.50
4.00
4.73
4.66
Dr. Noor Ul Haq
Dr. Siddiq Ur Rahman
Mr. Ghani Ur Rahman
Mr. Shad Muhammad
Mr. Arshad iqbal
Mr. Abdul Wajid Khan
Mr. Muhammad Fayyaz
Dr. Abdul Aziz
Mr. Shabbir Rahman
Miss Rozaeena Tabassum
Mr. Abdullah Khan
Mr. Waqar Ahmad
Miss Shahana Tariq


The course material is modern and updated
5.00
4.80
4.60
4.40
4.20
4.00
4.17
4.75
4.24
4.67
4.40
4.90
4.56
4.71
4.56
4.50
5.00
4.73
4.62
Dr. Noor Ul Haq
Dr. Siddiq Ur Rahman
Mr. Ghani Ur Rahman
Mr. Shad Muhammad
Mr. Arshad iqbal
Mr. Abdul Wajid Khan
Mr. Muhammad Fayyaz
Dr. Abdul Aziz
Mr. Shabbir Rahman
Miss Rozaeena Tabassum
Mr. Abdullah Khan
Mr. Waqar Ahmad
Miss Shahana Tariq


The material in the tutorials was useful
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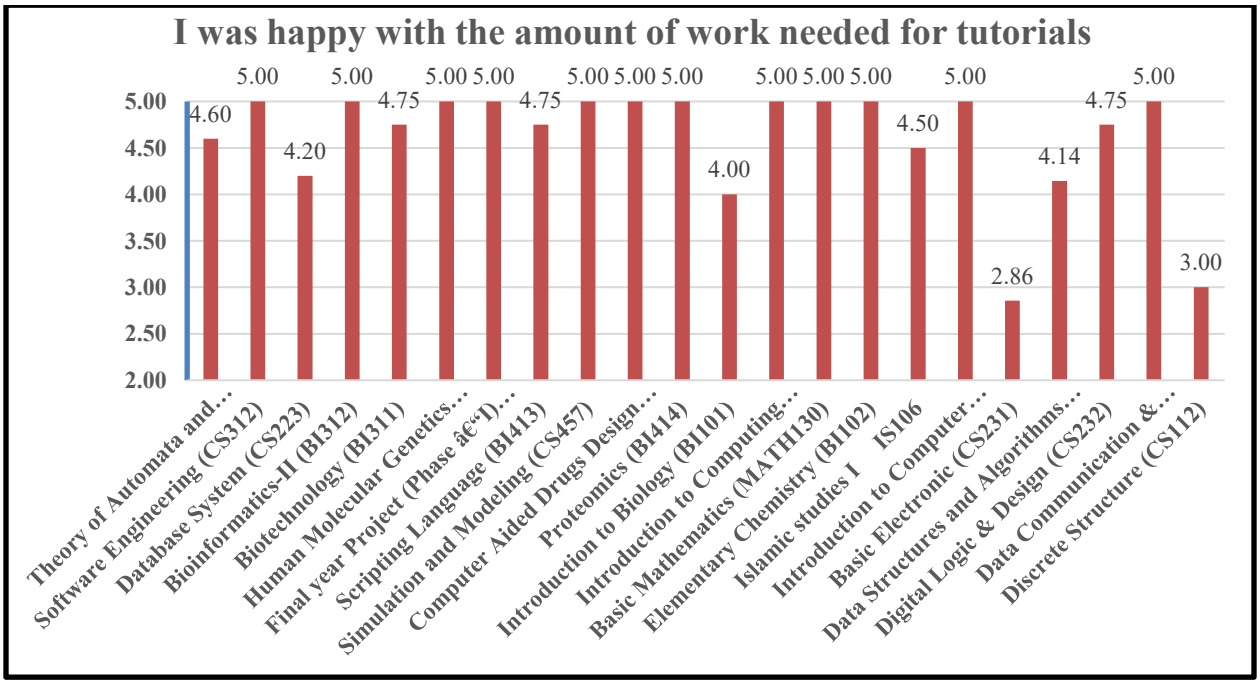
I was happy with the amount of work needed for tutorials
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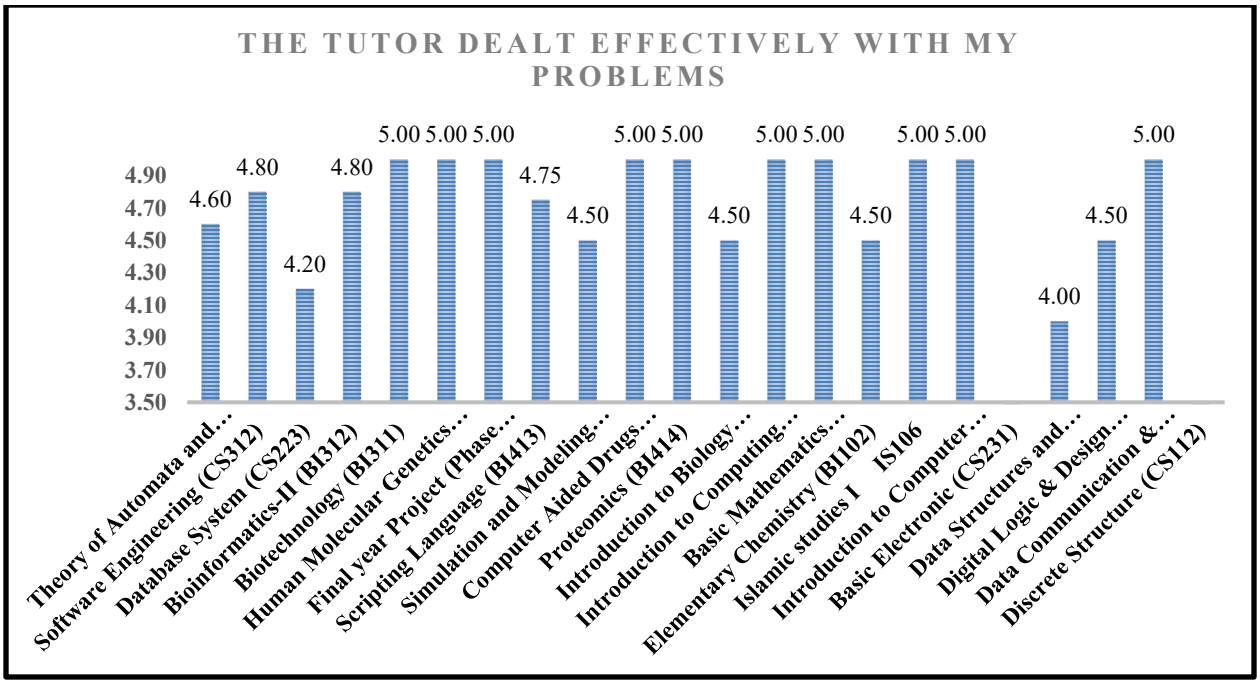
THE TUTOR DEALT EFFECTIVELY WITH MY PROBLEMS
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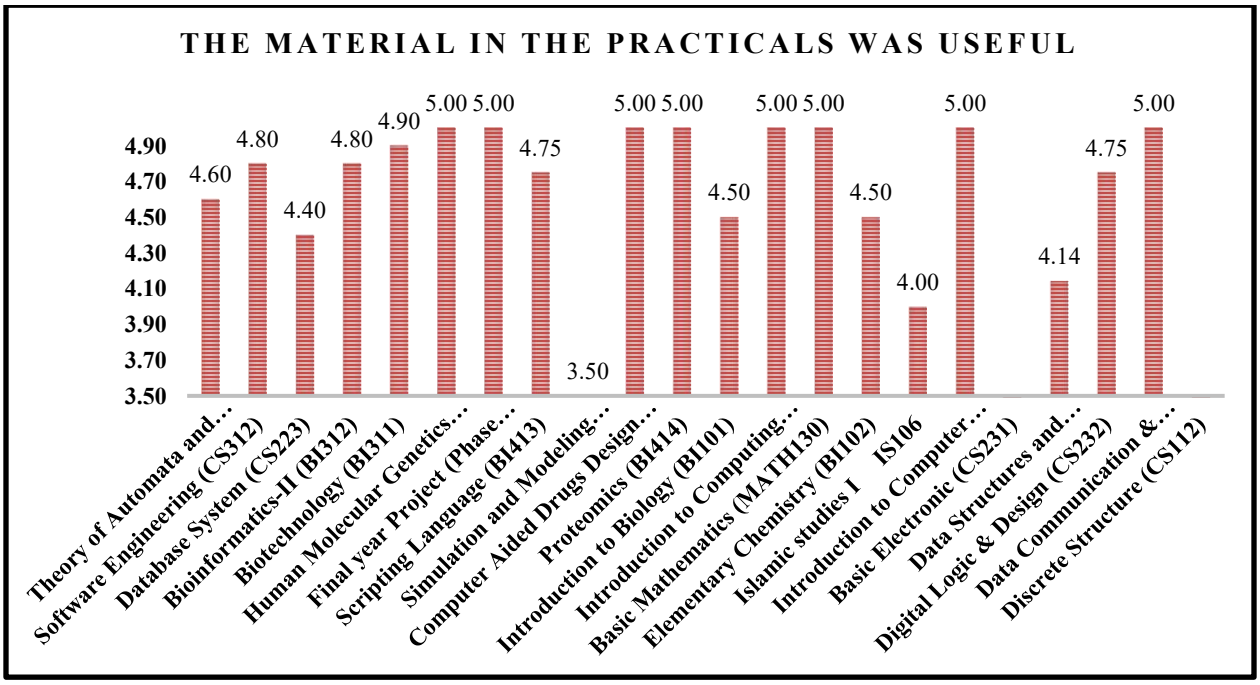
THE MATERIAL IN THE PRACTICALS WAS USEFUL
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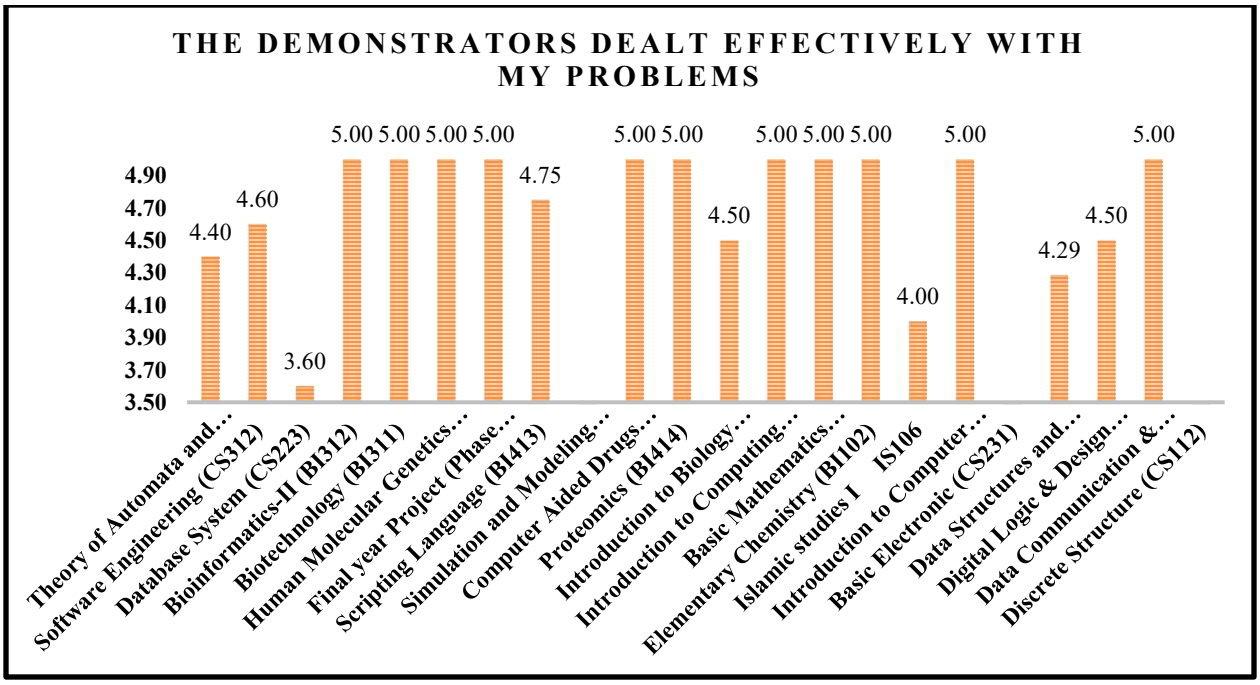
THE DEMONSTRATORS DEALT EFFECTIVELY WITH MY PROBLEMS
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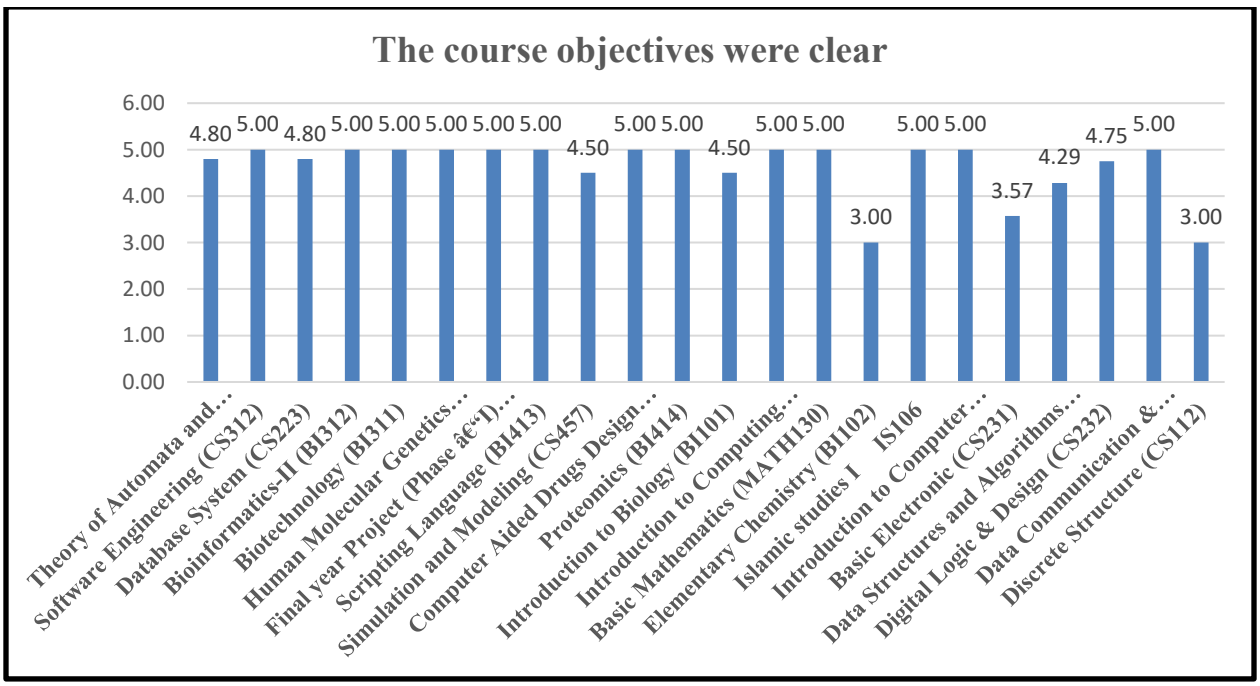
The course objectives were clear
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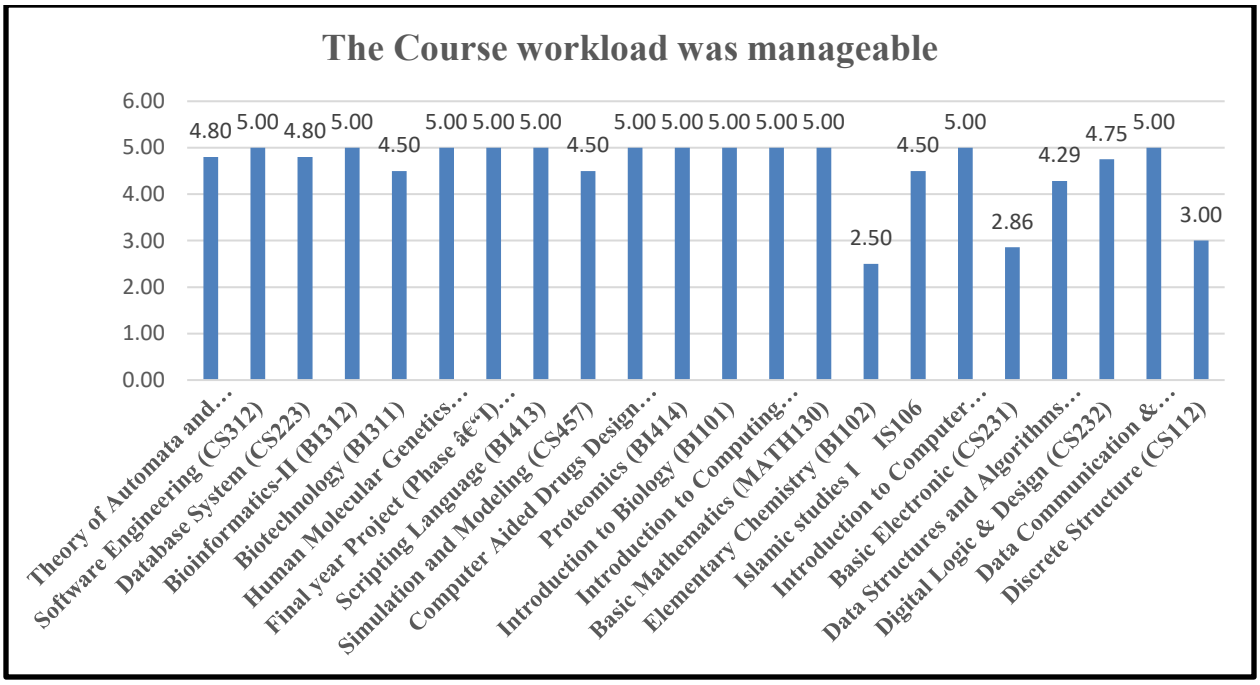
The Course workload was manageable
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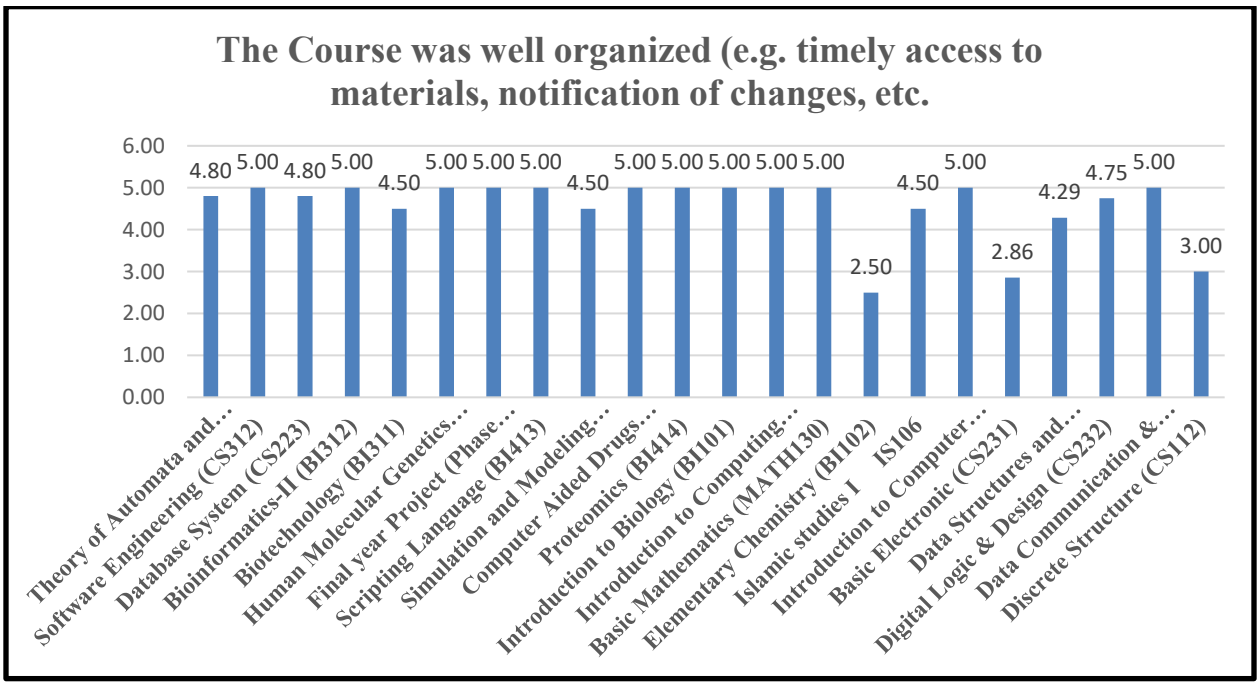
The Course was well organized (e.g. timely access to materials, notification of changes, etc.
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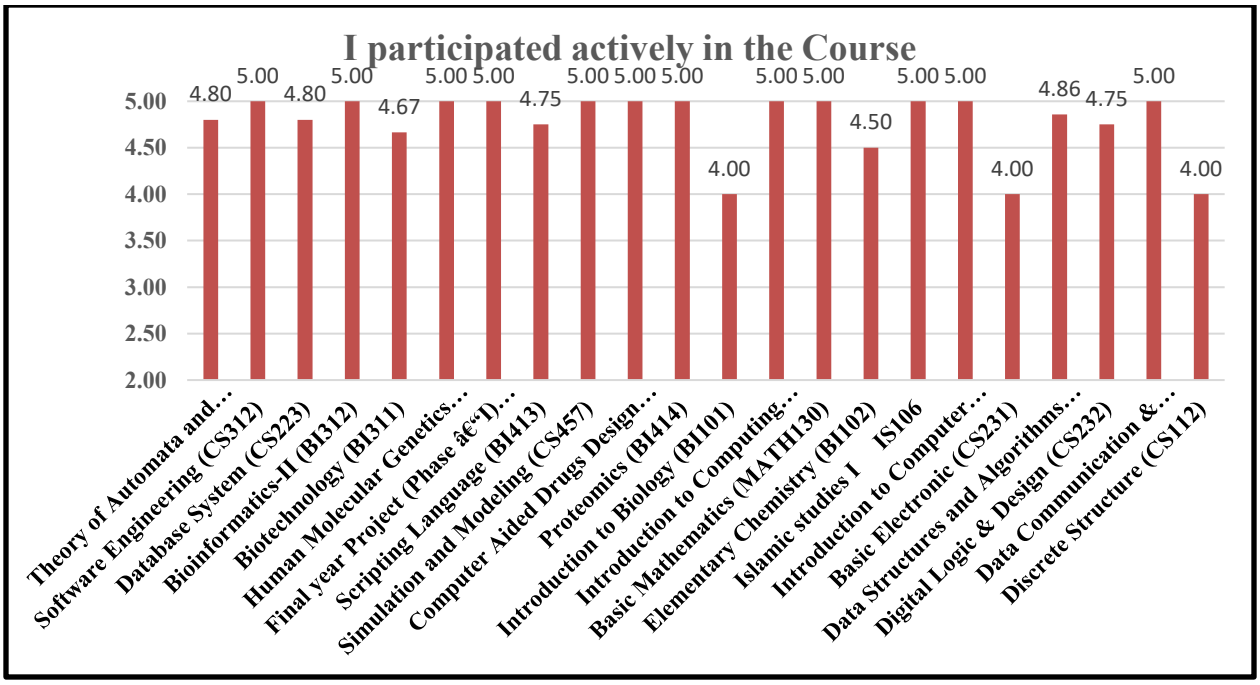
I participated actively in the Course
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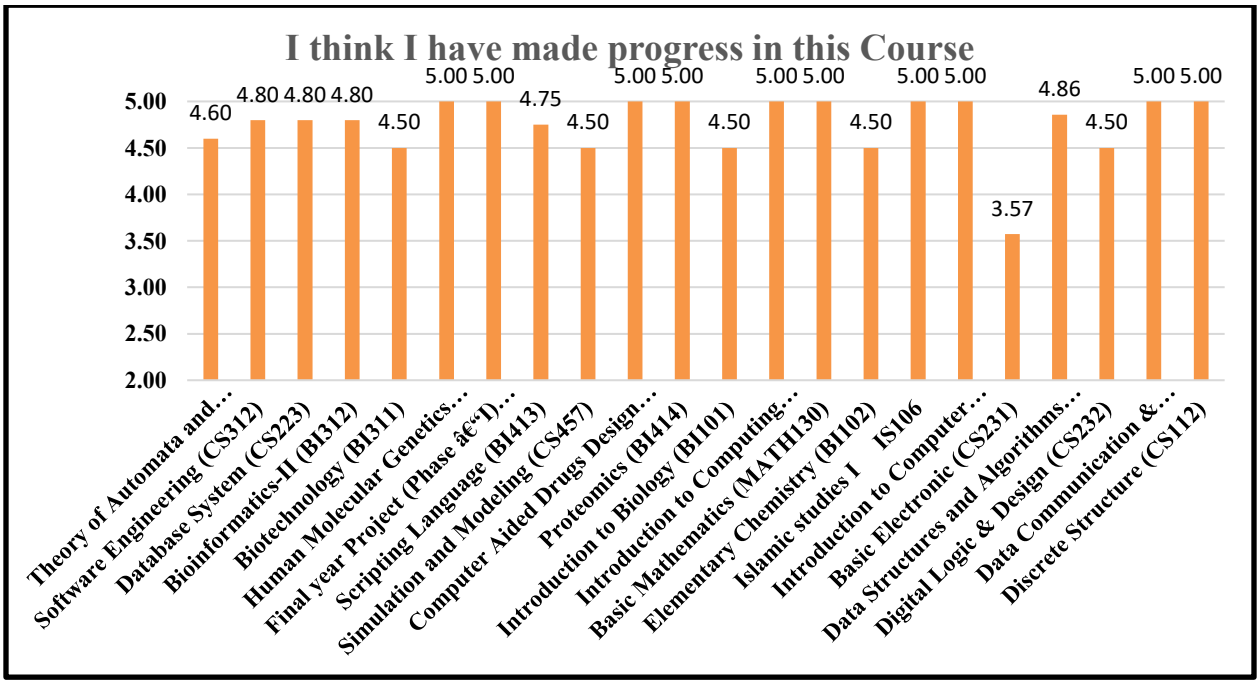
I think I have made progress in this Course
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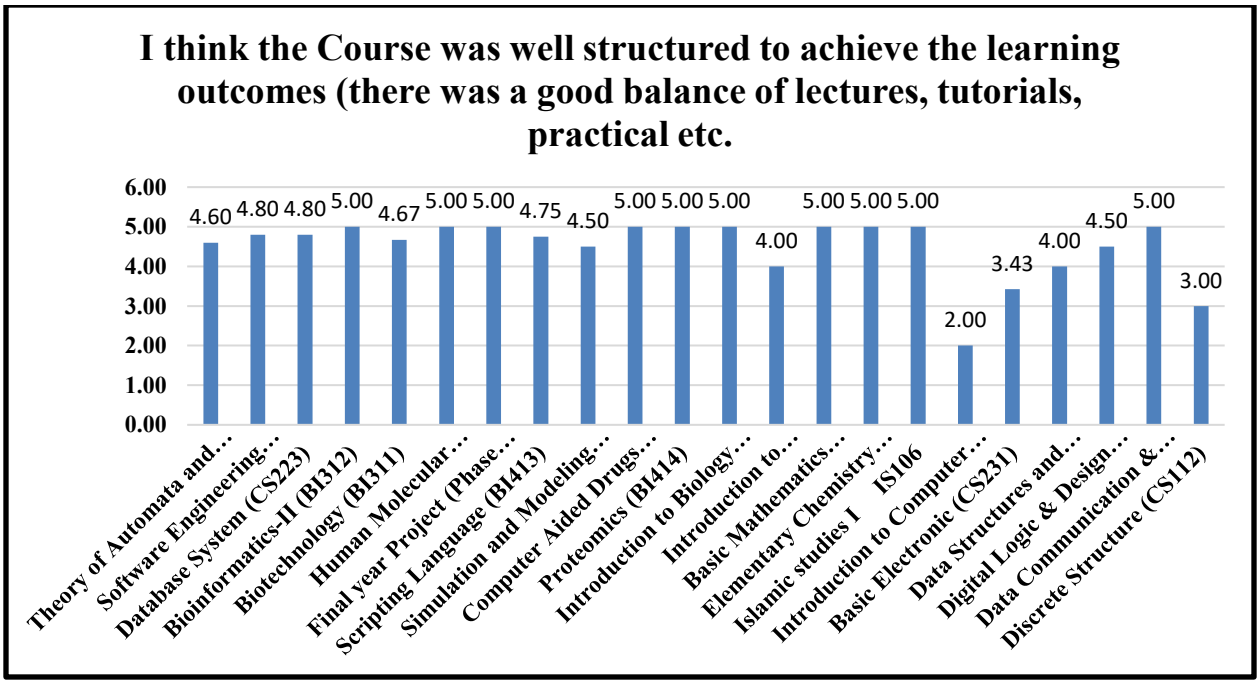
I think the Course was well structured to achieve the learning outcomes (there was a good balance of lectures, tutorials, practical etc.
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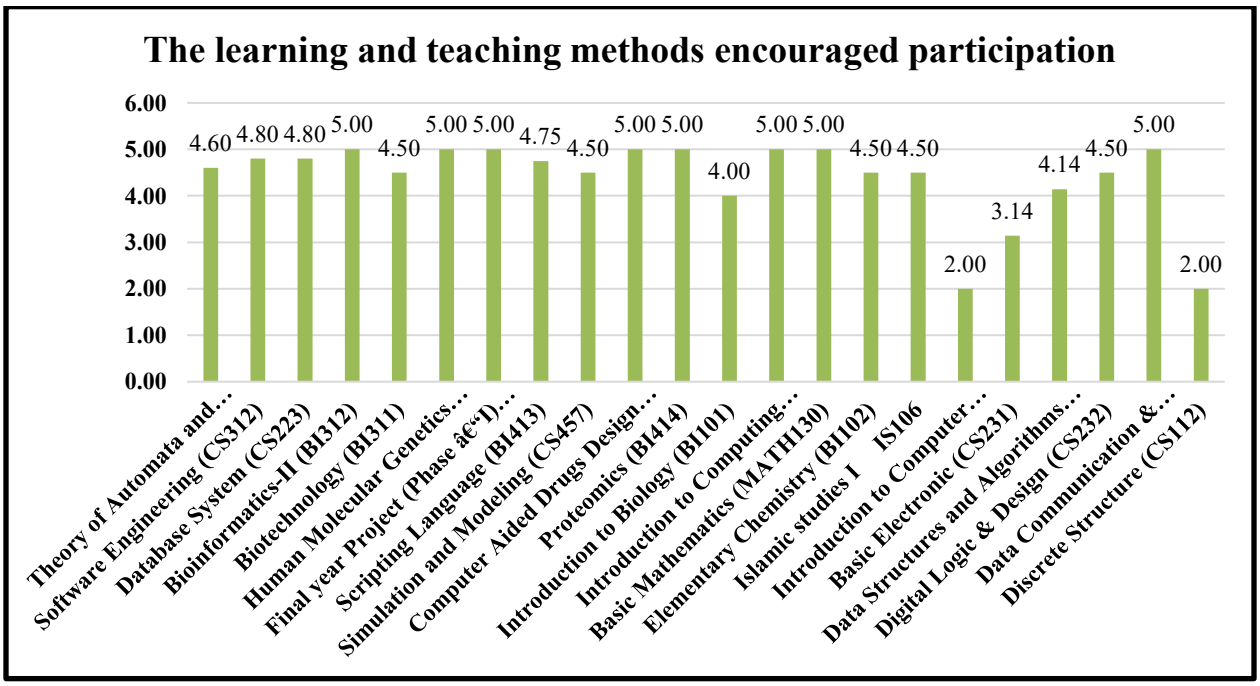
The learning and teaching methods encouraged participation
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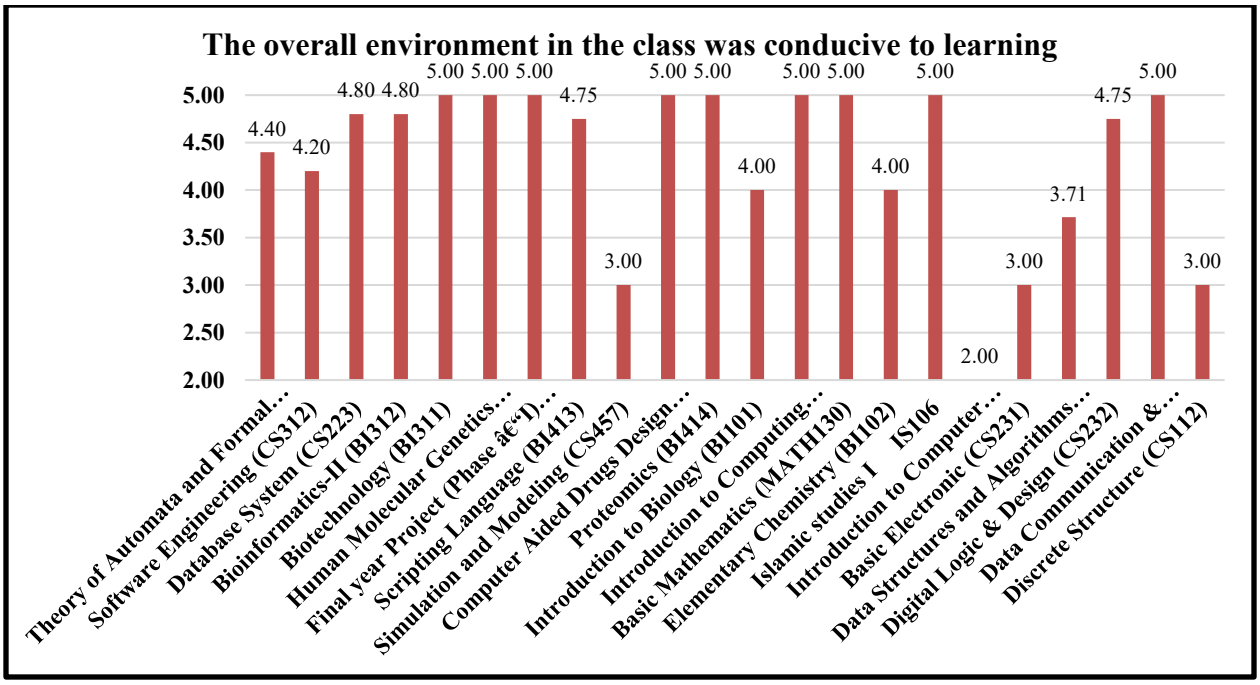
The overall environment in the class was conducive to learning
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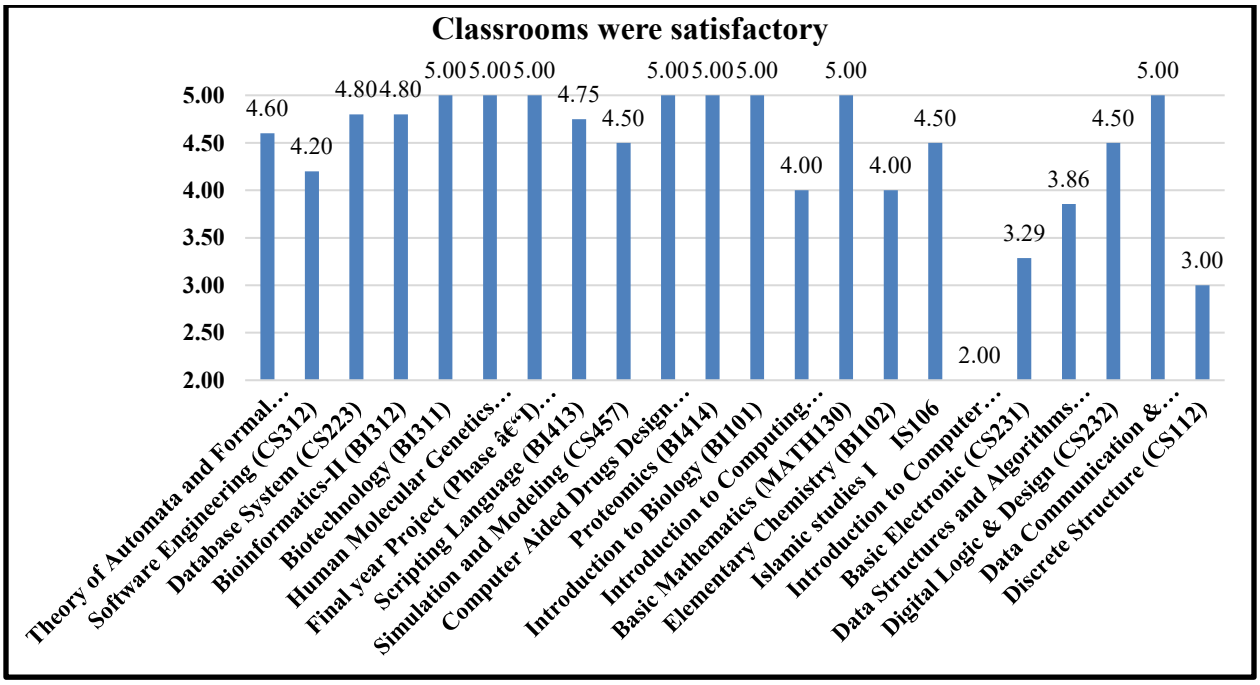
Classrooms were satisfactory
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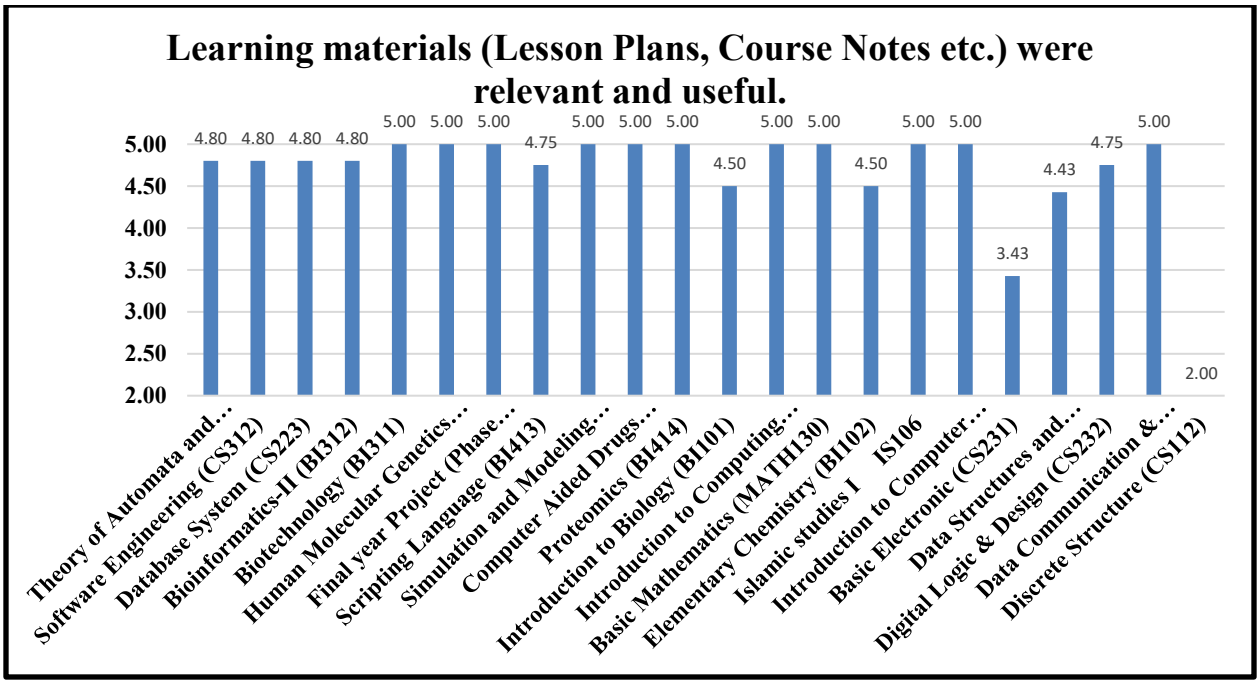
Learning materials (Lesson Plans, Course Notes etc.) were relevant and useful.
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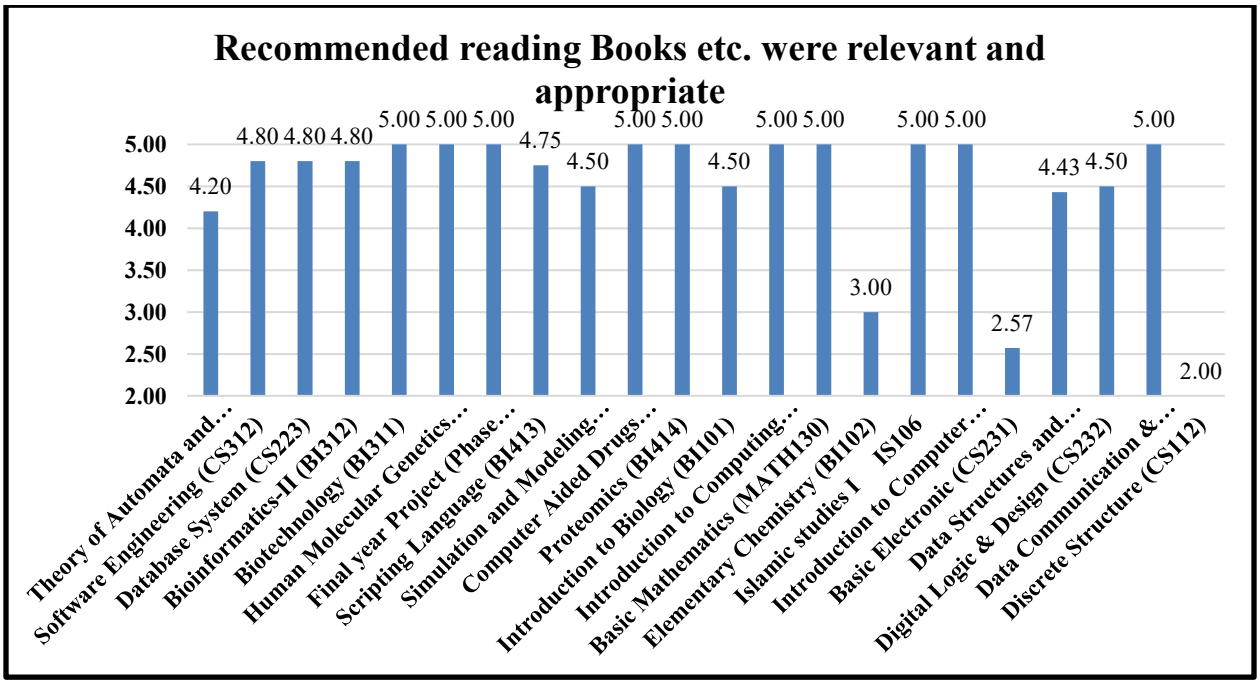
Recommended reading Books etc. were relevant and appropriate
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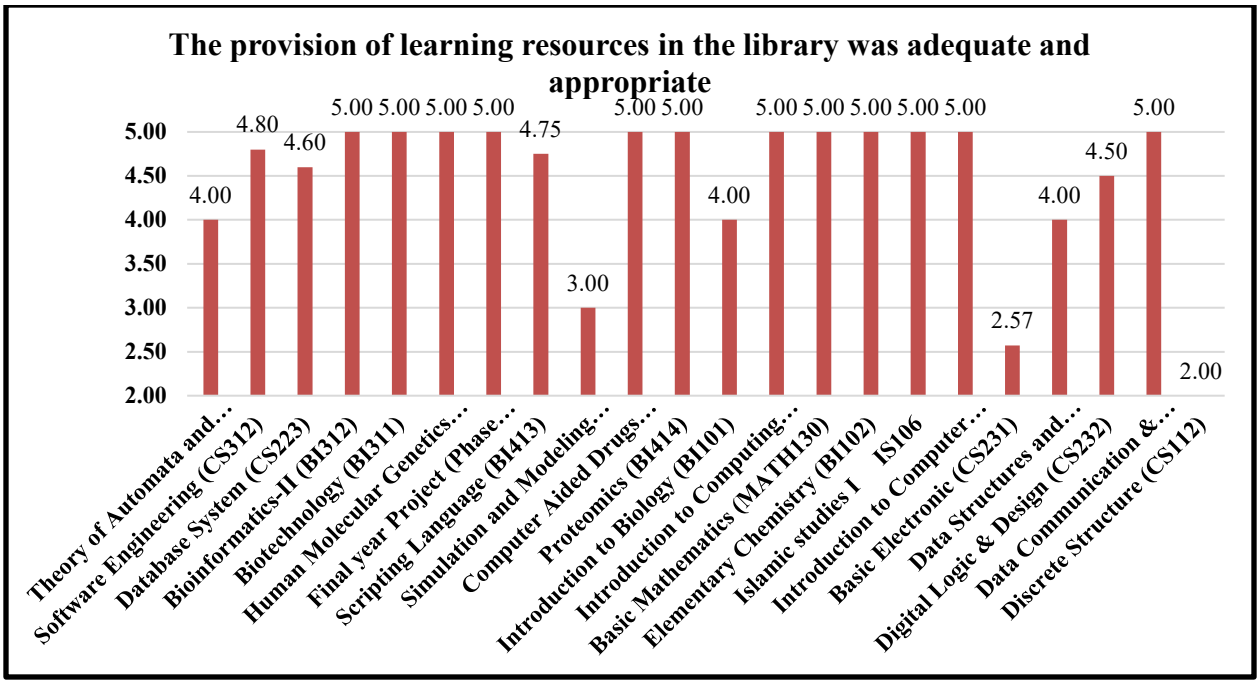
The provision of learning resources in the library was adequate and appropriate
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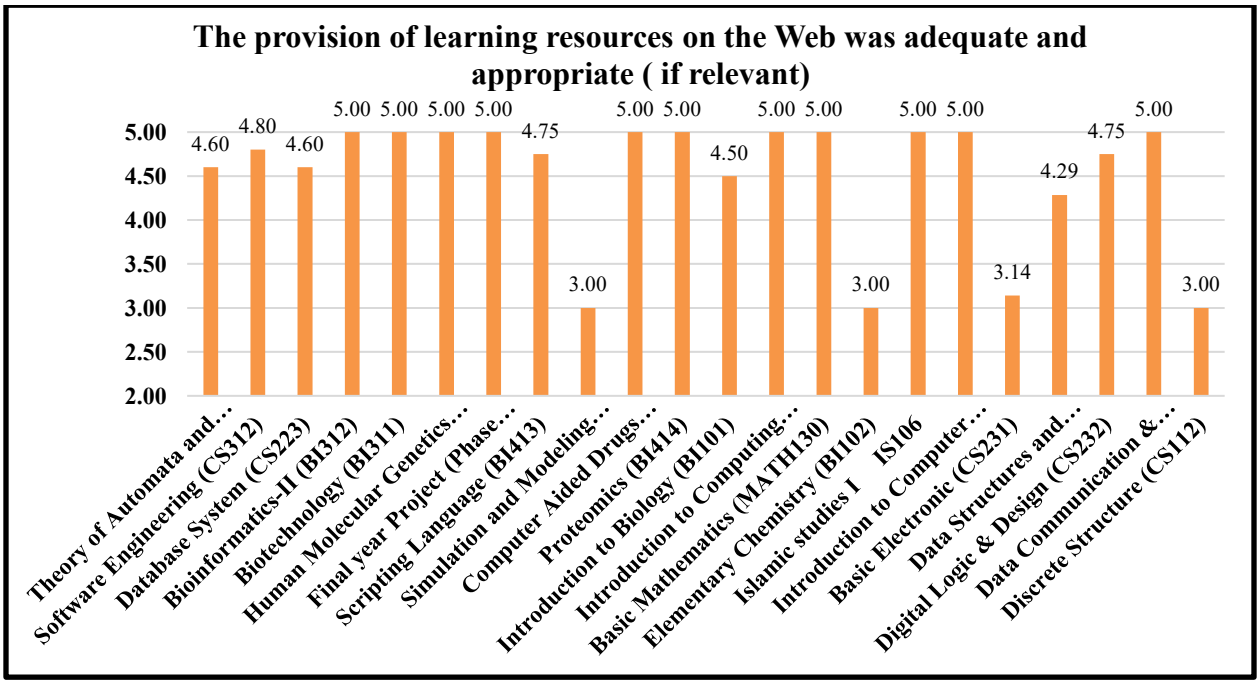
The provision of learning resources on the Web was adequate and appropriate (if relevant)
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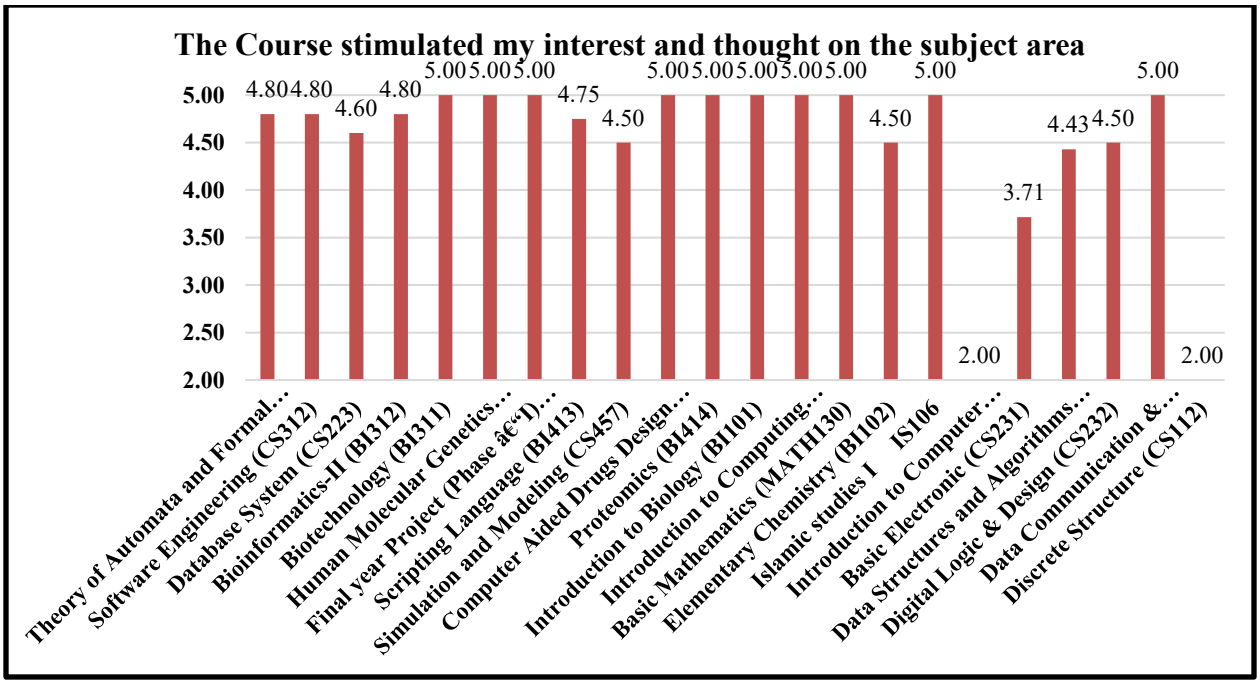
The Course stimulated my interest and thought on the subject area
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Proteomics (BI414)
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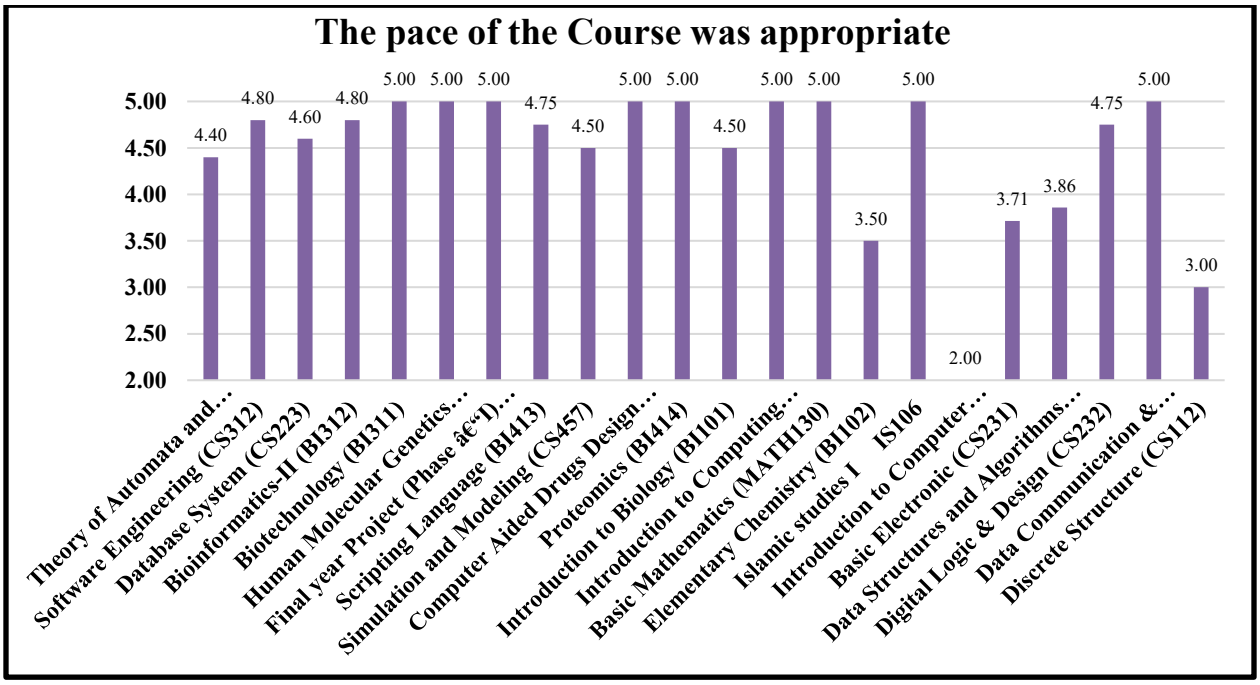
The pace of the Course was appropriate
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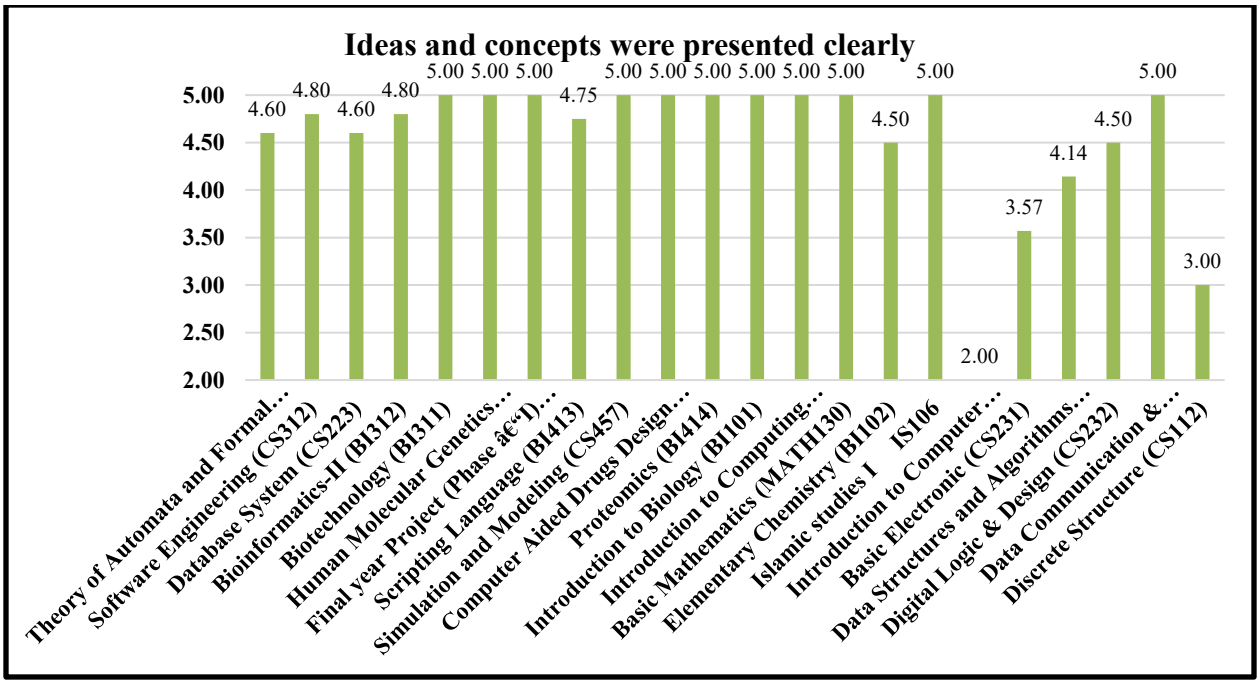
Ideas and concepts were presented clearly
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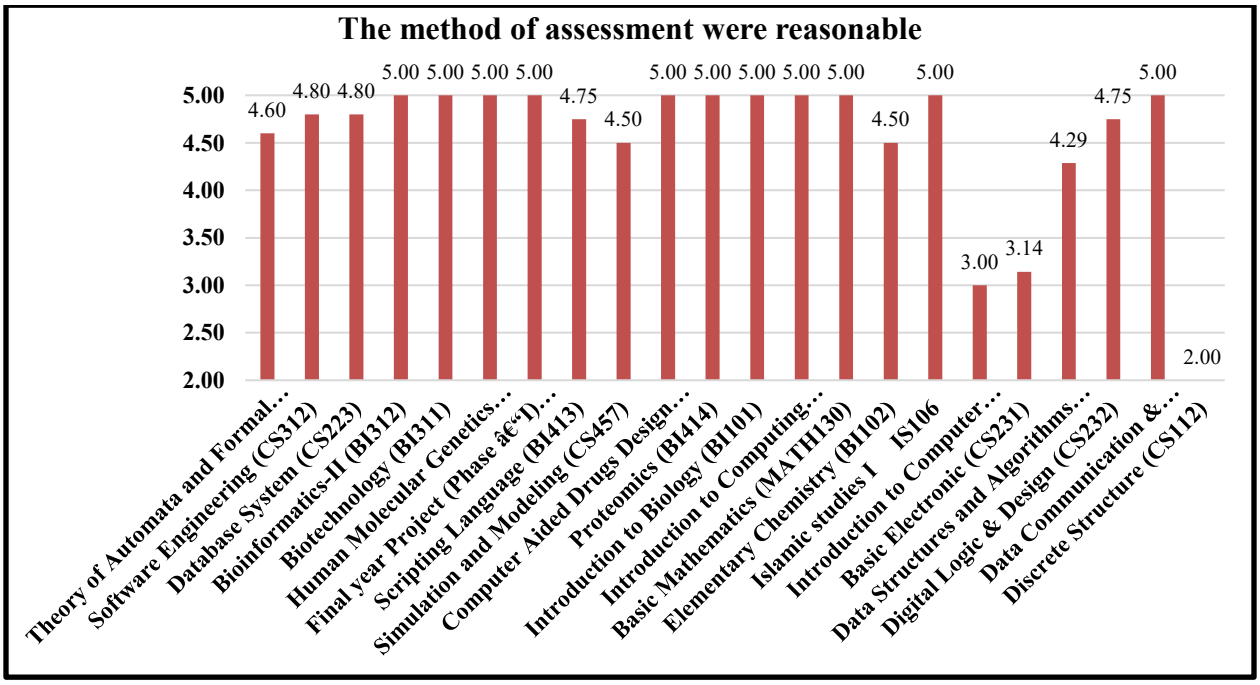
The method of assessment were reasonable
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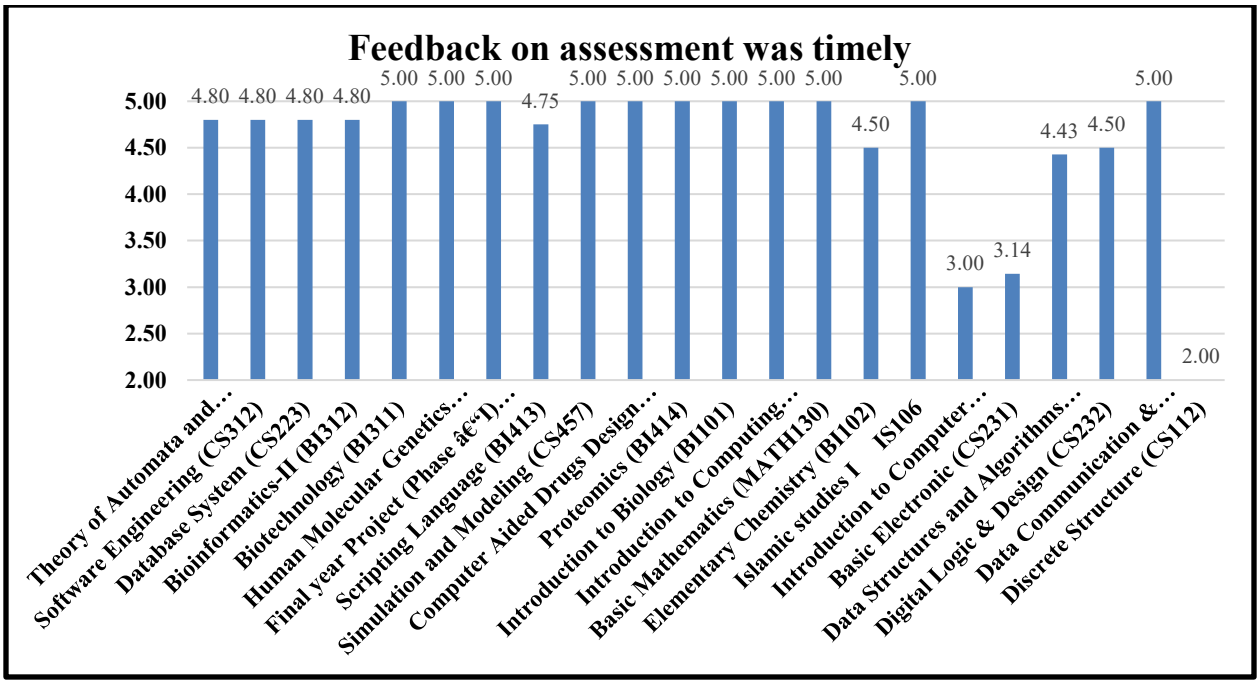
Feedback on assessment was timely
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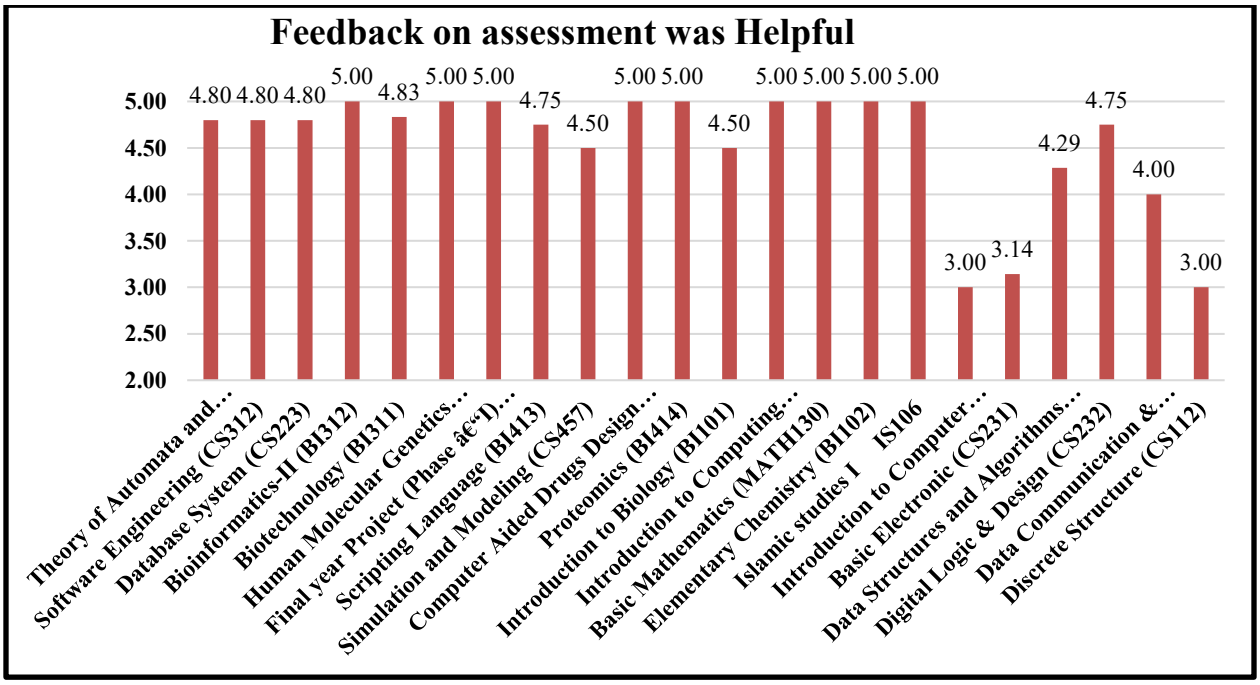
Feedback on assessment was Helpful
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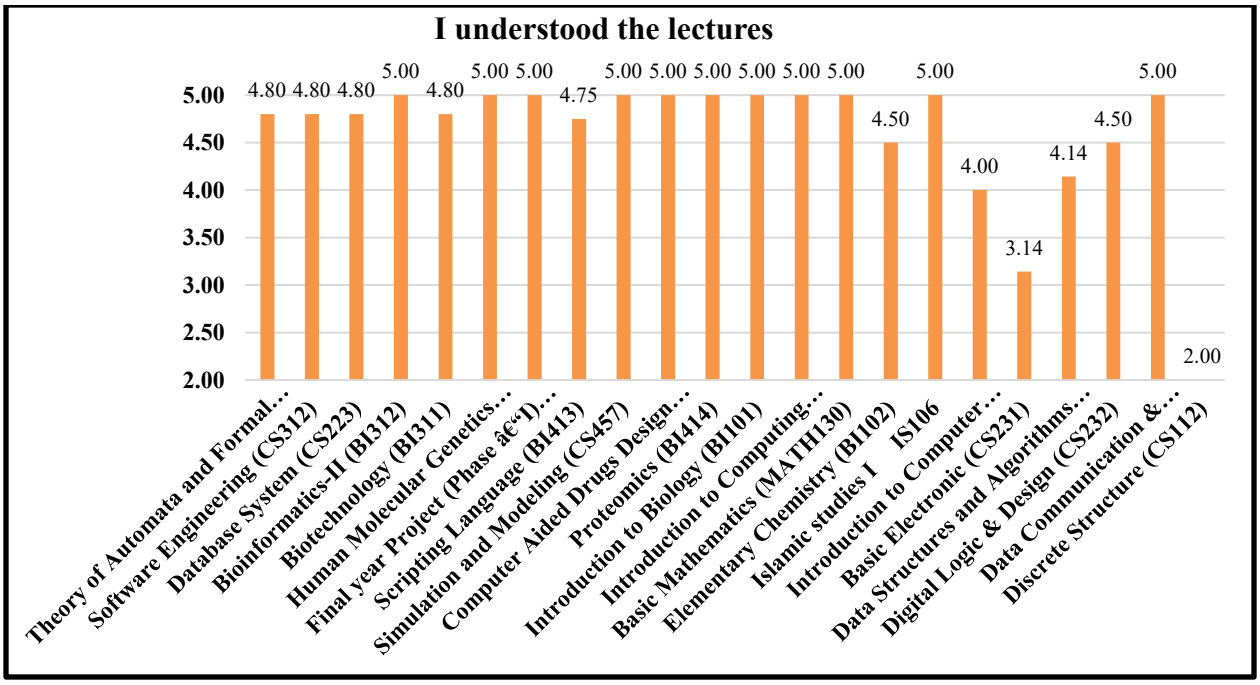
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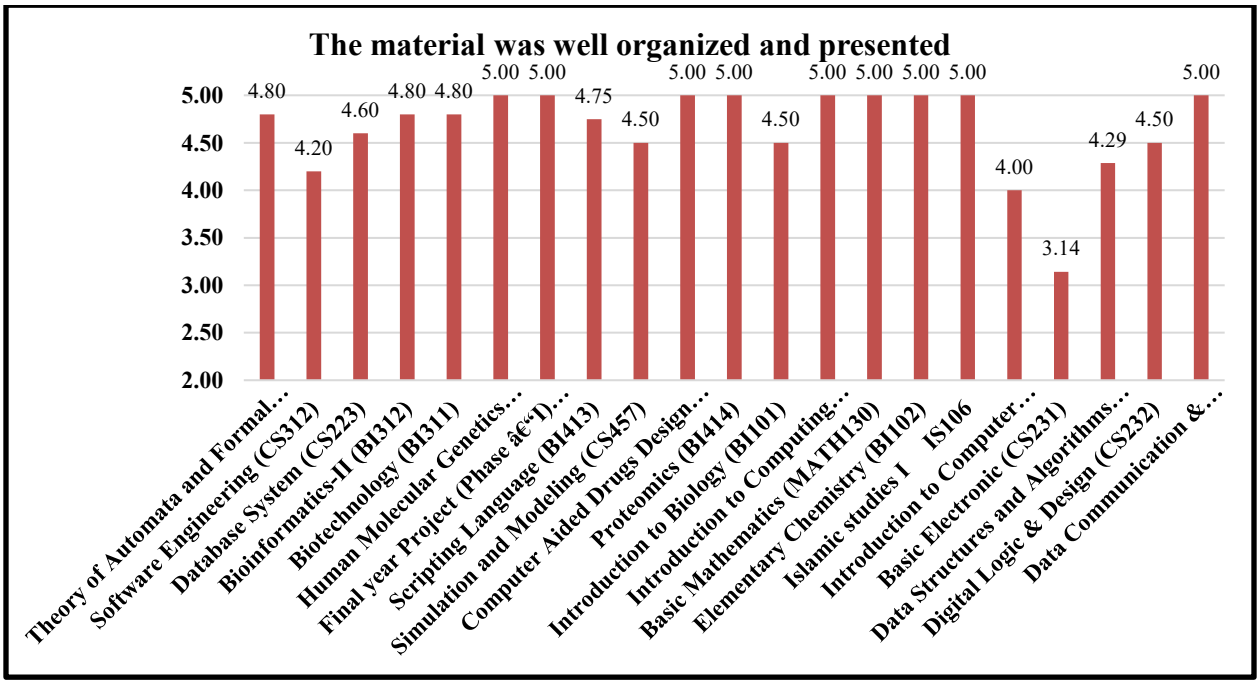
The material was well organized and presented
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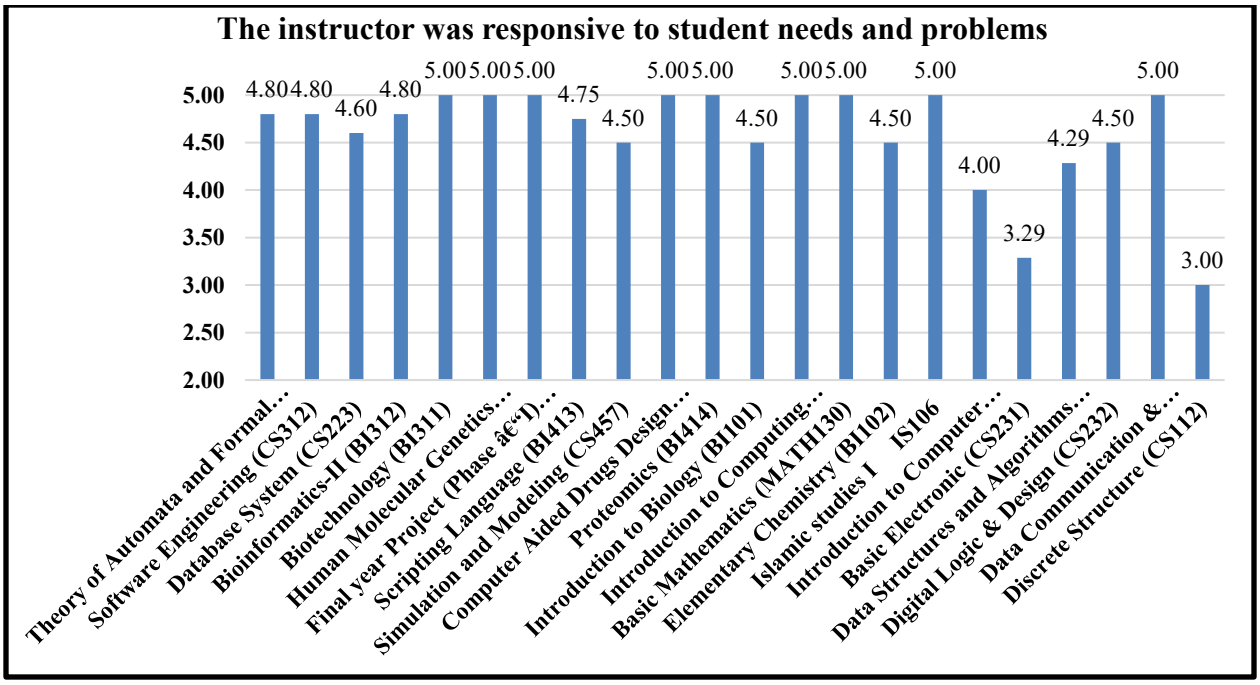
The instructor was responsive to student needs and problems
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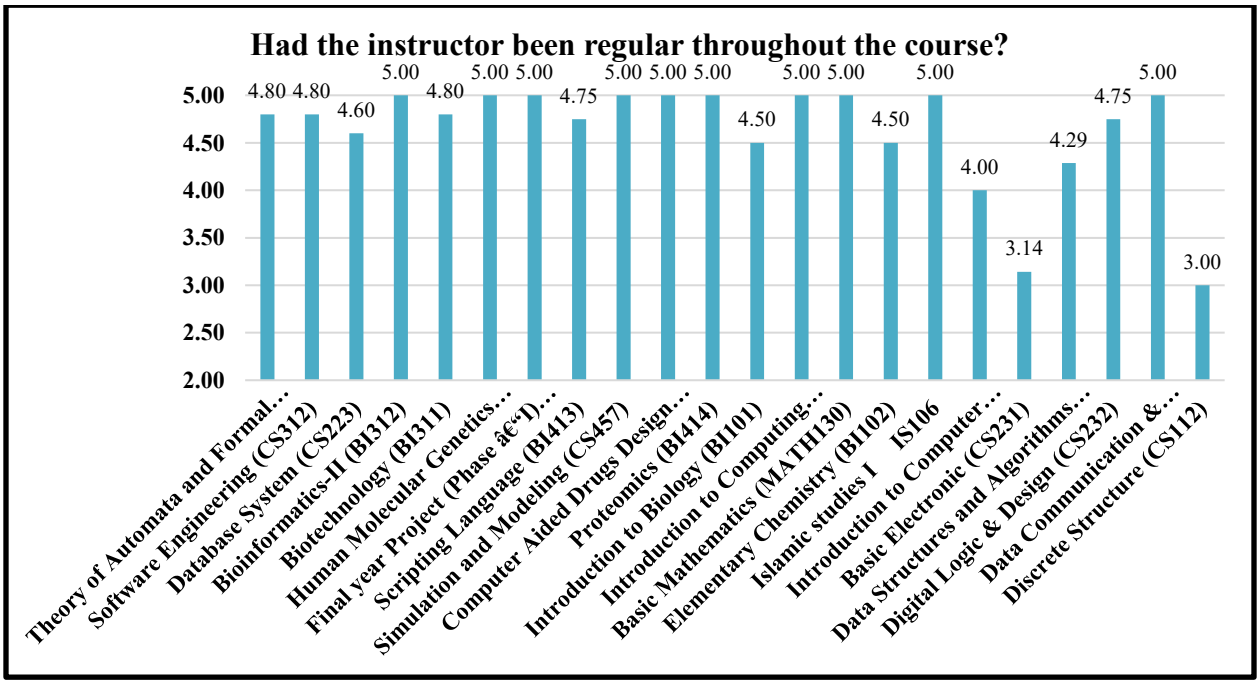
Had the instructor been regular throughout the course?
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Digital Logic & Design (CS232)
Data Communication &…
Discrete Structure (CS112)

Annexure-II: Publications List

Muhammad Zubair, Kong Xiangwei, and Saeed Mahfooz	DMAM: Distributed Mobility and Authentication Mechanism in Next Generation Networks	Security and Communication Networks	8(5)	845-863
Muhammad Zubair, Xiangwei Kong, Irum Jamshed, and Muhammad Ali.	Integrating SIP with F-HMIPv6 to Enhance End-to-End QoS in Next Generation Networks	Advances in Intelligent Systems and Computing	240	715-725
Muhammad Zubair, Xiangwei Kong, Saeed Mahfooz, and Irum Jamshed.	SIDP: A Secure Inter-domain Distributed PMIPv6	International Journal of Information and Electronics Engineering (IJIEE)	4(2)	103-110
Muhammad Zubair, Xiangwei Kong, and Saeed Mahfooz	Cross-layer Localized Mobility Management based on SIP and HMIPv6 in Next Generation Networks	Journal of Communications	9(3)	217-225
Muhammad Zubair, Xiangwei Kong, and Saeed Mahfooz.	Secure Session Mobility using Hierarchical Authentication Key Management in Next Generation Networks	Journal of Networks	9(5)	1121-1131
Muhammad Zubair, Xiangwei Kong, and Saeed Mahfooz.	CLAM: Cross-layer Localized Authentication Mechanism based on Proxy MIPv6 and SIP in Next Generation Networks	Journal of Communications	9 (2)	144-156
Zubair, M.; Mahfooz, S.; Khan, A.; ur Rehman, W.;	Providing end-to-end QoS in Next Generation Networks (NGNs) using combined SIP HMIPv6	2011 IEEE International Conference on Computer		113-118

,	(CSH)	Networks and Information Technology (ICCNIT		
Jamil, S.; Jamil, S.; Ahmed, S.; Zubair, M.; Sikandar, F.,	COPE: Cooperative Power and Energy-efficient routing protocol for Wireless Sensor Networks,	2015 IEEE/ACIS 14th International Conference on Computer and Information Science (ICIS)		47-52
M. Amin, L. Song, X. Wang, M. Zubair, J. Hussain, T. Mohammad,	GPA: Graphical Interface Based Path coefficient analysis	8th Conference on Extreme Value Analysis, Fudan University, Shanghai, P.R. China		
Muhammad Zubair, Kong Xiangwei, and Saeed Mahfooz,	SN-DMM: Secure Network-based Distributed Mobility Management	ETRI Journal (Submitted)		
Muhammad Zubair, Kong Xiangwei, Saeed Mahfooz, Irum Jamshed,	A Lightweight Reciprocal Authentication Mechanism to Secure Mobility in Next Generation Networks	IEEE System Journal (Submitted)		
Rehman.G*, Muhammad.S, Zia.A, Rehman.S and Asif.M	SCALABLITY ANALYSIS OF MPLS LABEL DISTRIBUTION PROTOCOLS RSVP	2nd International Conference on Computational and Social Sciences (ICCSS-2014)		
Rehman.S, **Rehman.G**, Haider.A, and Afzal.M.T	MEASURING THE RELEVANCY BETWEEN TAGS & CITATION IN SOCIAL WEB	Research Journal of Applied Sciences, Engineering and Technology		2040-7459
Rehman.G, Asif.M, Jan.R, Muhammad.S, and Ahmad.I	Simulation Based Study to Present the Performance of Ad-hoc Routing Protocols	International Journal of Innovation and Applied Studies	5(3)	261-268

Asif.M, **Rehman.G**, & Israr.U	Simulation based evaluation of a simple channel distribution Scheme for MANETs	*IOSR Journal of Computer Engineering (IOSR-JCE)*	12	55-62

Annexure III: Faculty information w.r.t Classes

S. #	Faculty Name	Designation	Course Title	Semester	Cr. Hrs	Workload (Classes in Week)
1	Dr. Muhammad Inam Ul Haq	Assistant Professor	Digital Signal & Image Processing (CS443)	BSCS 7th	03 (2+1)	5
			Intro. To computing (CS101)	BSCS 1st	03 (2+1)	5
		Total Credit Hours			06	**10**
2	Dr. Muhammad Zubair	Assistant Professor	Data Communication & Computer Networking (CS272)	BSCS 3rd	04 (3+1)	6
			Computer Networks (CS471)	BSBI 6th	03 (2+1)	5
			Computer Networks (CS471)	BSCS 7th	04 (3+1)	6
		Total Credit Hours			**11**	**17**
3	Mr. Tariq Usman	Lecturer	Data Structures & Algorithms (CS211)	BSCS 3rd	04 (3+1)	6
			Design and Analysis of Algorithms (CS313)	BS CS 5th	03	3
			Introduction to Computing	BS (Eng) 3rd	03	3
			Introduction to Computer Programming (CS102)	BSCS 1st	04 (3+1)	6
		Total Credit Hours			**14**	**18**
4	Mr. Ghani ur Rehman	Lecturer	Database System (CS223)	BSBI 5th	03 (2+1)	5
			Office automation	BS (Eng) 1st	03	3
			Intro. To computing (CS101)	BSBI 1st	03 (2+1)	5
			Discrete Structures (CS112)	BS BI 3rd	03	3
		Total Credit Hours			**12**	**16**
5	Mr. Shad Muhammad	Lecturer	Human Computer Interaction (CS461)	BSCS 7th	03	3
			Operating Systems (CS312)	BSCS 5th	4	6
			Software Engineering (CS251)	BSBI 5th	03	3
			MIS	BBA 5th	03	3
		Total Credit Hours			**13**	**15**
6	Mr. Arshad Iqbal	Visiting Lecturer	Theory of Automata and Formal Languages (CS314)	BSBI 5th	03	3
			Artificial Intelligence (361)	BSBI 6th	03	3
			Introduction to Computing	BBA 1st	03 (2+1)	5

			Data Mining (CS321)	BS CS 7th	03	3
		Total Credit Hours			**12**	**14**
7	Mr. Waqar	Visiting Lecturer	Basic Computer Skills	BS CMS 1st	03 (2+1)	5
			Object Oriented Programming (CS11	BSBI 3rd	04	6
			Computer Applications in Geology	BS Geo 5th	03	3
		Total Credit Hours			**10**	**14**
8	Dr. Abdul Aziz	Assistant Professor	Introduction to Biology (BI101)	BSBI 1st	03 (2+1)	5
			Techniques in Molecular Biology (BI314)	BSBI 6th	03 (2+1)	5
			Fundamental of Genetics	MS BI 6th	03	3
		Total Credit Hours			**09**	**13**
9	Dr. Noor ul Haq	Assistant Professor	Biochemistry I (BI202)	BSBI 3rd	03 (2+1)	5
			Biostatistics (BI201)	BSBI 3rd	03	3
			Biotechnology (BI311)	BSBI 5th	03 (2+1)	5
		Total Credit Hours			**09**	**13**
10	Mr. Abdul Wajid Khan	Visiting Lecturer	Application of BI (BI315)	BSBI 6th	03 (2+1)	5
		Total Credit Hours			**03**	**5**
11	Dr. Siddiq Ur Rahman	Assistant Professor	Bioinformatics –II (BI312)	BSBI 5th	03 (2+1)	5
		-	Phylogenetics (BI313)	BSBI 6th	03	03
		Total Credit Hours			**03**	**5**
12	Arif Sohail	Visiting Lecturer	Linear Algebra (MATH301)	BSCS 5th	03	3
			Calculus and Analytical Geometry (MATH101)	BSCS 1st	03	3
		Total Credit Hours			**06**	**6**
13	Dept of Management Sciences	Lecturer	Statistics and Probability (STAT105)	BSCS 1st	03	3
14	Miss Shanna Tariq	Visiting Lecturer	Islamic Studies (IS106)	BSBI 1st	02	2
			Islamic studies (IS106)	BSCS 1st	02	2
		Total Credit Hours			**04**	**4**
15	Mr. Shabbir Rehman	Visiting Lecturer	Basic Mathematics (MATH130)	BSBI 1st	03	3

16	Mr. Muhammad Fayaz	Visiting Lecturer	Elementary Chemistry (BI102)	BSBI 1st	03 (2+1)	5
17	Mr. Umair ur Din Dept of Management Sciences	Lecturer	Principles of Management (MG205)	BSBI 3rd	03	3
			Principles of Management (MG205)	BSCS 5th	03	3
		Total Credit Hours			**06**	**6**
18	Department of English	Lecturer	Functional English (EG103)	BSCS 1st	03	3
		Lecturer	Communication Skills (EG204)	BSCS 3rd	03	3
		Lecturer	Functional English (EG103)	BSBI 1st	03	3
		Lecturer	Technical and Business Writing (EG104)	BSBI 3rd	03	3
		Total Credit Hours			**12**	**12**
19	Mr. Arshad Iqbal	Visiting Lecturer	Digital Logic &Design(CS232)	BSCS 3rd	03 (2+1)	5
			Microprocessor & Assembly Language (CS333)	BSCS 5th	03 (2+1)	5
			Basic Electronic (CS231)	BSCS 3rd	03	3
		Total Credit Hours			**09**	**13**

Annexure IV: Faculty Resume

Dr. Muhammad INAM UL HAQ

Ph.D.
E-mail: inamix@gmail.com
Phone: 03339173835

OBJECTIVES:

Dynamic environment, where I can polish my skills, utilize energies and implement my innovative ideas. After completing my postgraduate research on the analysis of texture evaluation in LIP Framework, I am interested in continuing the same with a broader domain in Computer Vision and Stereo Vision while working in academia.

EDUCATION:

- **Ph.D. Image Processing** **Oct 2009- June 2013**

  Hubert Curien Research Laboratory, Jean Monnet University, France.

  Thesis Title: ***"Texture Analysis in the Logarithmic Image Processing"***

- **MS-IT** **2005 - 2007**

  University of Peshawar, Pakistan.

  Thesis Title "*Radon Transform Based Real Time Sit and Herbicide Specific Weed Recognition System*"

- **M.Sc. (Computer Sciences)**

  2001 -2003

  University of Peshawar, Pakistan.

WORK EXPERIENCE:

- **Assistant Professor, Department of Computer Science and BioInformatics. Aug 2013 – to date.**
  Khushal Khan Khattak Univerisyt, Karak, Pakistan.
- **Lecturer, Department of Computer Science 2004-2005**
  BRAINS Post Graduate College of IT, Peshawar, Pakistan.
- **Programmer 2006 - 2007**
  FC Foundation, FC HQrs, Sonehri Masjid Road, Peshawar, Pakistan.
- **Visiting Lecturer 2007-2008**
  National Bank Staff College, Peshawar, Pakistan.

ADMINISTRATIVE & OTHER EXPERIENCE IN THE UNIVERSITY:

- H.o.D. Computer Science & BioInformatics.
- In-charge of IT Section of the University.
- Convener Board of Studies of Computer Science & BioInformatics.
- Member of Academic Council of the University.
- Member Board of Advance Studies and Research.
- Member of the University Purchase Committee.

TRAININGS:

- IT Management
- Intellectual Property Rights
- Microsoft SharePoint

RESEARCH INTERESTS:

- Image Processing
- Texture Evaluation and Classifications

- Computer/machine vision,
- E-learning, E-management
- ICT for development

RESEARCH PUBLICATIONS:

JOURNAL ARTICLES:

1. Khan, M. Q., Andresen, S. H., **Muhammad Inam ul Haq**, "*Handover Architectures For Heterogeneous Networks Using The Media Independent Information Handover (MIH)*", Computing and Informatics, Vol. 35, 2016, 1001-1026.
2. Insaf Ullah , **Muhammad Inam ul Haq** et al, "*Proxy Sincryption Based on Hyperelliptic Curves"* , International Journal of Computer (IJC) (2016) Volume 20 , No 1, pp 157-166.
3. Rehman Ullah , **Muhammad Inam ul Haq** et al, *"Object Tracking and Pose Calculation System for Mobile Augmented Reality, Using Natural Features"* ,Indian Journal of Scientific Research and Technology, Ind. J. Sci. Res. and Tech. 2015 3(1):pp 40-50.
4. **Muhammad Inam ul Haq** and Michel JOURLIN *"Random Textures Classification thanks to Logarithmic Percolation"*, ISS (Image Analysis and Stereology) Journal. (in Process).

PROCEEDINGS IN INTERNATIOANL CONFERENCES:

1. **Muhammad Inam ul Haq**, Michel Jourlin , *Contribution of Logarithmic tools in texture evaluation*, ICS-13, October 19-23, 2011 Beijing, China.
2. **Muhammad Inam ul Haq**, Abdul Muhamin Naeem, Irshad Ahmad and Muhammad Islam, *Radon Transform Based Real Time weed Classifier*, in Computer Graphics, Imaging and Visualization, 2007. CGIV '07, pp.245,249, 14-17 Aug. 2007.
3. Abdul Muhamin Naeem, **Muhammad Inam ul Haq**, Irshad Ahmad, Muhammad Islam, Muhammad Qasim. *Radial Symmetry Based Real-Time Weed Classifier*. International Conference on Control, Instrumentation and Mechatronics Engineering (CIM'07), Johor Bahru, Malaysia, May 28-29, 2007.

POSTER PRESENTATION AT INTERNATIOANL CONFERENCES:

1. **Muhammad Inam ul Haq**, Muhammad Nawaz et al. Foreground Detection using Background Subtraction with Histogram, BMSB 2013
2. **Muhammad Inam ul Haq**, Michel JOURLIN and B. Abdallah, Tentative de classification de textures aléatoires par percolation logarithmique, 36ème journée ISS France, 7 février 2012.

GRANTS/AWARDS:

- Grant (by HEC Pakistan + i|msciences Peshawar) of $1150.00 for participation in CIM 07, Johar Bahro , Malaysia. 2007.
- HEC Pakistan Scholarship for PhD in France. From July 2008- Jan 2013.
- Grant of €2000.00 for participation in International Congress of Stereology (ICS-13) by CNRS France through Lab Hubert Curien, Université Jean Monnet France.
- H-E Bursaries Fellowship during ICS -13 in Beijing, Oct 2011.

CURRICULUM VITAE

Dr. Abdul Aziz (HEC Approved Supervisor) (Assistant Professor KKKUK.)

Objectives:

To work with the dynamic organization, that confederates opportunities of professional growth, research work to improve my knowledge and performance through training and vocational recognition through challenging assignments.

Contact Information:

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Email: aziz_qau85@yahoo.com, abdul.aziz@kkkuk.edu.pk

Personal Information:

- NIC #: 12201-5760504-5
- Date of Birth: October 6, 1981
- Permanent Address: Village Daud Khel P.O Tajori , Teh; and Distt; Tank, K.P.K (Pakistan)
- Postal Address: Deptt. Of CS & Bioinformatics Khushal Khan Khattak University, Karak,. Khyber Pakhtunkhwa, Pakistan.

Experience

Working as Assistant Professor in the Deptt. of CS & Bioinformatics Khushal Khan Khattak University Karak since October 2015 till date.

Four years' experience as a Technical Assistant in PCR Laboratory, Shifa College of Medicine, Islamabad.

Project Approved for Funding

- Mapping and identification of genes involved in Human hereditary skeletal disorders.

Total Cost: ≈0.5 millions PKR

Sponsoring agency: HEC

Posters Presentation

- Poster Presentations entitled "Mapping and identification of genes involved in Human hereditary skeletal disorders" in HEC 15 Year Celebration Role & Contribution of Higher Education Institutions in National Development held in IM science Peshawar, Khyber-Pakhtunkhwa, Pakistan. **September 21, 2017.**

Conferences & Workshops Attended

- 8th one Day Workshop on the Significance of Bioinformatics in Life Sciences **(May 13, 2017)** in Capital University of Science and Technology (CUST), Islamabad.

Academic Qualifications:

Examination	**Institution/Board**	**Year of Passing**	**Division**	**Subject**
Ph. D	Quaid-i-Azam University Islamabad pakistan	2011-2015	1st	Biochemistry/ Molecular Biology
M.Phil	Quaid-i-Azam University	Spring 2006-fall	1st	Biochemistry/ Molecular

	Islamabad Pakistan	2007	3.7 CGPA	Biology
M.Sc	Quaid-i-Azam University Islamabad Pakistan	2006	1st	Biochemistry/ Molecular biology
B.Sc	Gomal University Dera Ismail Khan Pakistan	2003	1st	Zoology, Botany, Chemistry

Courses studied in M. Sc:

- Biochemistry I (introduction)
- Biochemistry II (metabolism)
- Genetics
- Cell biology
- Molecular biology
- Gene Manipulation (recombinant DNA technology)
- Protein chemistry
- Nucleic Acid
- Evolution
- Immunology
- Microbial physiology
- Enzymology
-

Courses studied in M. Phil:

- Advances in Molecular Biology
- Advances in Molecular Genetics
- Immunology
- Plant cell and Tissue culture
- Seminar (Biochemistry)
- Medical Microbiology
-

Courses studied in Ph. D:

- Bioethics
- Cancer genetics
- Research Technique
- Advance in Molecular Genetics
- Advance in protein Chemistry

- Seminar (Biochemistry)

Command in Techniques like:

- Chromosomal analysis (Karyotyping).
- Extraction of Genomic DNA from Blood.
- Agarose Gel Electrophoresis, Polyacrylamide Gel Electrophoresis (PAGE).
- Linkage analysis
- DNA sequencing analysis of mutated genes involved in hereditary disorders.
- Handling of all type of PCR systems.
- Pedigree analysis.
- Extraction of Hepatitis C virus RNA.
- Synthesis of cDNA.
- Hepatitis C Virus Genotyping.
- Qualitative and Quantitative PCR of Hepatitis C Virus.
- Clinical Evaluation of *Mycobacterium tuberculosis* PCR Assay.
- HLA-B27 PCR
- Real Time PCR of HCV, HBV, CMV and HSV.
- Operating ABI310 Genetic Analyzer

Ph. D Thesis Title:

- Clinical and Molecular Characterization of Human Hereditary Skeletal Disorders In Consanguineous Families

M. Phil Thesis Title:

- Genetic Mapping of Candidates of Hereditary Microcephaly Genes.

Publications:

Ullah A, Gul A, Umair M, Irfanullah, Ahmad F, **Aziz A**, Wali A, Ahmad W (2017). Homozygous sequence variants in the WNT10B gene underlie split hand/foot malformation. (Accepted in Press).

Irfanullah, Nasir A, Mehmood S, Ahmed S , Ullah MI , Ullah A, **Aziz A**, Raza SI , Shah K , Khan S , Hassan MJ, Ahmad W (2017). Identification and in silico analysis of GALNS mutations causing Morquio A syndrome in eight consanguineous families. TurK J Biol doi:10.3906/biy-1607-81

Khan AK, Muhammad N, **Aziz A**, Khan SA, Shah K, Nasir A, Khan MA, Khan S. (2017). A novel mutation in homeobox DNA binding domain of HOXC13 gene underlies pure hair and nail ectodermal dysplasia (ECTD9) in a Pakistani family. BMC Med Genet. 18:42.

Ahmad F, Ansar M, Mehmood S, Izoduwa A, Lee K, Nasir A, Abrar M, Mehmood S, Ullah A, **Aziz A**; University of Washington Center for Mendelian Genomics, Smith JD, Shendure J, Bamshad MJ, Nicekrson DA, Santos-Cortez RL, Leal SM, Ahmad W (2016). A novel missense variant in the PNPLA1 gene underlies congenital ichthyosis in three consanguineous families. J Eur Acad Dermatol Venereol. 30:e210-e213.

Aziz A, Raza SI, Ali S, Ahmad W (2016). Novel homozygous mutations in the EVC and EVC2 genes in two consanguineous families segregating autosomal recessive Ellis–van Creveld syndrome. Clin Dysmorphol. 25:1-6.

Ali RH, Mahmood S, Raza SI, Aziz A, Irfanullah, Naqvi SK, Wasif N, Ansar M, Ahmad W, Shah SH, Khan BT, Zaman Q, Gul A, Wali A, Ali G, Khan S, Khisroon M, Basit S (2015). Genetic analysis of Xp22.3 micro-deletions in seventeen families segregating isolated form of X-linked ichthyosis. J Dermatol Sci.80:214-217.

Rehman AU, Santos-Cortez RL, Drummond MC, Shahzad M, Lee K, Morell RJ, Ansar M, Jan A, Wang X, **Aziz A**, Riazuddin S, Smith JD, Wang GT, Ahmed ZM, Gul K, Shearer AE, Smith RJ, Shendure J, Bamshad MJ, Nickerson DA; University of Washington Center for Mendelian Genomics, Hinnant J, Khan SN, Fisher RA, Ahmad W, Friderici KH, Riazuddin S, Friedman TB, Wilch ES, Leal SM (2014) Challenges and solutions for gene identification in the presence of familial locus heterogeneity. Eur J Hum Genet. 23:1207-1215.

Santos-Cortez RL, Lee K, Giese AP, Ansar M, Amin-Ud-Din M, Rehn K, Wang X, **Aziz A**, Chiu , Hussain Ali R, Smith JD; University of Washington Center for Mendelian Genomics, Shendure J, Bamshad M, Nickerson DA, Ahmed ZM, Ahmad W, Riazuddin S, Leal SM (2014). Adenylate cyclase 1 (ADCY1) mutations cause recessive hearing impairment in humans and defects in hair cell function and hearing in zebrafish. Hum Mol Genet 23:3289-3298.

Aziz A, Irfanullah, Khan S, Zimri FK, Muhammad N, Rashid S, Ahmad W (2014) Novel homozygous mutations in the WNT10B gene underlying autosomal recessive split hand/foot malformation in three consanguineous families. Gene 534 :265-271.

Basit S, Wali A, **Aziz A**, Muhammad N, Jelani M, Ahmad W (2010). Digenic inheritance of an autosomal recessive hypotrichosis in two consanguineous pedigrees. Clin Genet 79:273-81.

Abdul Aziz, Muhammad Ansar, Regie Lyn P. Santos-Cortez,Kwanghyuk Lee, University of Washington Center for Mendelian Genomics, Deborah A Nickerson, Jay Shendure, Michael Bamshad, Wasim Ahmad, Suzanne M Leal (2015). Exome sequencing identified a non-sense mutation in the gene FAM92A1. (submitted)

References:

1. Dr. Wasim Ahmad, Professor,
   Research Supervisor,
   Department of Biochemistry,
   Quaid-I-Azam university, Islamabad.
   Mobile #: +92-300-5357427
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2. Dr. Abdul Wali, Associate Professor,
   Department of Biotechnology,
   Balochistan University of Science and Technology.
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3. Sulman Basit, M.Phil, PhD
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   Taibah University,
   Madinah Al Munawara 30001, Saudi Arabia.
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NOOR UL HAQ (PHD)

Assistant Professor
Department of Computer Science & Bio-Informatics,
Khushal Khan Khattak University 27200,
Karak, Khyber-Pakhtunkhwa, Pakistan.
Higher Education Commission (HEC) of Pakistan, Approved PhD Supervisor.
Email: noorqu@gmail.com, noorulhaq@kkkuk.edu.pk
https://www.researchgate.net/profile/Noor_Ul_Haq

PROFESSIONAL EXPERIENCE

Assistant Professor, Department of Computer Science & Bioinformatics, Khushal Khan Khattak University 27200, Karak, Khyber-Pakhtunkhwa, Pakistan. October 2015 – Till Date

Post-Doc Fellow, CAS-MPG Partner Institute for Computational Biology, Shanghai Institute for Biological Sciences, Shanghai 200031, P. R. China. May 2013 – Aug. 2015

Research Associate, Department of Biochemistry, Faculty of Biological Sciences, Quaid-i-Azam University 45320, Islamabad, Pakistan. Feb 2013 – May 2013

Sandwich Research Experience during PhD, Department of Biological Sciences, Dartmouth College, Hanover, USA. Sep 2012 – March 2013

ACADEMIC QUALIFICATIONS:

PhD Biochemistry/Molecular Biology
Department of Biochemistry, Faculty of Biological Sciences, Quaid-i-Azam University 45320, Islamabad, Pakistan. Feb. 2013

M.Phil (18 Years), Biochemistry
Department of Biochemistry, Faculty of Biological Sciences, Quaid-i-Azam University 45320, Islamabad, Pakistan. Jan. 2009

M.Sc (16 Years), Biochemistry
Gomal University, Dera Ismail Khan, Khyber-Pakhtunkhwa, Pakistan. 2006

B.Sc (14 Years) Botany, Zoology, Chemistry
Gomal University, Dera Ismail Khan, Khyber-Pakhtunkhwa, Pakistan. 2004

POST DOCTORAL RESEARCH WORK:

1. ***Studying the Effect of Low CO_2 on Physiology and Gene Expression of Different Accessions of Arabidopsis thaliana.***

Photosynthesis is very important process by which the plants use the solar energy to convert CO_2 and H_2O into carbohydrates and O_2. Plants are the ultimate source of all of our food and all fossil fuels and have the potential to play a critical role in producing renewable energy resources and mitigating climate change. Low CO_2 is considered the causative agent of the evolution of C4 photosynthesis having greater efficiency as compared to C3 under low CO_2 as well as high temperature conditions. I was working to check the effect of Low CO_2 on physiology and gene expression of C3 model plant i.e. *Arabidopsis thaliana*. The main objective of this project was to study the response of different accessions of *Arabidopsis thaliana* and genes having the key roles in C4 photosynthesis evolution. After knowing the genes and main steps involved in C4 Photosynthesis evolution, we can engineer C4 plants to get greater output.

PHD THESIS TITLE:

Expression of Chloroplast Small Heat Shock Proteins Gene of Chenopodium album under Different Abiotic Stresses.

We isolated the chloroplast small heat shock proteins gene to find out the promoters of the gene responsible for tolerance against abiotic stresses. We used physiological parameters for indication of stress followed by studies of gene expression pattern on transcriptional and translational level and promoter isolation.

M.PHIL THESIS TITLE:

Gene Identification of Chloroplast Small Heat Shock Proteins of Agave under Heat Stress.

Chloroplast small heat shock proteins gene was identified and was sequenced for *Agave* (CAM Plant). Differential expression of Cp-sHSP in *Agave* was studied at different temperatures. Cp-sHSP gene expression was confirmed by RT-PCR.

FELLOWSHIPS AND AWARDS

(1) Chinese Academy of Sciences (CAS) Young International Scientists Post-Doc Fellowships. **May 2013 to Aug. 2015**

(2) Six months research training (20th of Sep 2011 to 17th of March 2012) in **"Dartmouth Medical College, Hanover, USA"** under International Research Support Initiative Program (IRSIP) of Higher Education Commission (www.hec.gov.pk) of Pakistan.

(3) Indigenous Scholarship of Higher Education Commission (Pakistan) for **PhD.**

(4) Indigenous Scholarship of Higher Education Commission (Pakistan) for **M.Phil.**

PUBLICATIONS: (Citations >190 Google Scholar)

- Samina N. Shakeel, ***Noor ul Haq,*** Sitwat Aman, Scott A. Heckathorn, Dawn S. Luthe, E. Willliam Hamilton. Analysis of Molecular Variation in Domains in Chloroplast Small Heat-Shock Proteins of Higher Plants. **(In Preparation).**

- Farman Ullah Khan, ***Noor ul Haq,*** Rubina Naz, Mushtaq Ahmad, Amir Miraj-Ul- Hussain Shah, Sadia Mumtaz, Mumtaz Khan**.** *Polygonum plebejum*: an Effective Medicinal Plant. **(In Preparation).**

- Nawshad Muhammad, Amir Miraj ul Hussain Shah, Yuejin Hua, Muhammad Imran, Sher Zman Safi, ***Noor ul Haq,*** Nighat Sultana, Zia ul Haq, Sadia Mumtaz **(2018).** Role of Transition Metals in Oxidative Stress of Bacteria. (Submitted for Publication in **Biological Trace Element Research).**

- Nasir Mehmood Khan, Zia Ullah Khan, Farman Ali Khan, ***Noor ul Haq,*** Asad Ali **(2018).** Effects of combined chemical treatment (salt, organic acid and sugar) on shelf life and quality of button mushroom (*Agaricus bisporus*). (Submitted for Publication in **Journal of Food Science and Technology).**

- ***Noor ul Haq,*** *Ming-Ju Amy Lyu and Xin-Guang Zhu* **(2018)**. Mechanisms to Minimize Ammonium Loss from Photorespiration Forms a mechanistic linkage between Low CO_2 and C4 Photosynthesis Evolution. (Submitted for publication in **BMC Plant Biology).**

- *Qurat ul Ain Farooq*[$], ***Noor ul Haq*[$],** *Abdul Aziz, Sara Aimen* **(2018).** Mass Spectrometry for Proteomics and Recent Development in Ionization Methodologies. (Under Review for publication in **Current Proteomics: Manuscript # BMS-CP-2018-12). [$]Equal Contribution**

- *Sarah Rizwan Qazi*[$], ***Noor ul Haq*[$],** *Shakeel Ahmad* and *Samina N Shakeel* **(2018).** HSEAT: A Tool for Plant Heat Shock Element Analysis, Motif Identification and Analysis. (Under Review for publication in **Current Bioinformatics: Manuscript # BMS-CBIO-2018-51). [$]Equal Contribution**

- *Sitwat Aman*[§], ***Noor ul Haq*[§],** *Shakeel Ahmad and Samina N. Shakeel* **(2017)**. Identifications and validations of suitable reference genes for gene expression data normalization of *Chenopodium album*. **International Journal of Agriculture and Biology 19: 761-770. [§]equal contribution.**

- *Samina Shakeel, Zhiyong Gao, Madiha Amir, Yi-Feng Chen, Muneeza Iqbal Rai,* ***Noor Ul Haq****, G. Eric Schaller* **(2015).** Ethylene Regulates Levels of Ethylene-Receptor/CTR1 Signaling Complexes in *Arabidopsis thaliana*. **Journal of Biological Chemistry 290(19): 12415-12424.**

- *Li YY, Xu JJ,* ***Haq NU****, Zhang H, Zhu X-G* **(2014).** Was low CO_2 a driving force of C4 evolution? *Arabidopsis* responses to long-term low CO_2 stress. **Journal of Experimental Botany, 65(13): 3657-3667.**

- ***Noor Ul Haq,*** *Muhammad Ammar, Asghari Bano, Dawn S. Luthe, Scott A. Heckathorn, Samina N. Shakeel* **(2013).** Molecular characterization of *Chenopodium album* chloroplast small heat shock protein and its expression in response to different abiotic stresses. **Plant Molecular Biology Reporter 31(6): 1230-1241.**

- ***Noor Ul Haq,*** *Sana Raza, Dawn S. Luthe, Scott A. Heckathorn, Samina N Shakeel* **(2013).** A Dual Role for the Chloroplast Small Heat Shock Protein of *Chenopodium album* including Protection from Both Heat and Metal Stress. **Plant Molecular Biology Reporter 31(2): 398-408.**

- *Samina Shakeel, Sitwat Aman,* ***Noor Ul Haq****, Scott A. Heckathorn, Dawn S. Luthe* **(2013).** Proteomic and transcriptomic approach to explore the molecular basis of adaptation of *Agave americana* to heat stress. **Plant Molecular Biology Reporter 31(4): 840-851.**

- *Samina N Shakeel,* ***Noor Ul Haq,*** *Scott Heckathorn, D. S. Luthe* **(2012)**. Analysis of gene sequences indicates that quantity not quality of chloroplast small HSPs improves thermotolerance in C4 and CAM plants. **Plant Cell Reports 31(10): 1943-1957.**

- *Sitwat Aman,* ***Noor Ul Haq****, Samina N. Shakeel* **(2012)**. Identification and validation of stable internal control for heat induced gene expression of *Agave Americana*. **Pakistan Journal of Botany 44(4): 1289-1296.**

- *Hall, B.P., Shakeel, S.N., Amir, M.,* ***Haq, N.U.,*** *Qu, X. and Schaller, G.E.* **(2012).** Histidine-kinase activity of the ethylene receptor ETR1 facilitates the ethylene response in *Arabidopsis*. **Plant Physiology 159: 682-695.**

- *Shakeel S,* ***Haq NU,*** *Heckathorn SA, Hamilton EW, Luthe DS* **(2011)**. Ecotypic variation in chloroplast small heat-shock proteins and related thermotolerance in *Chenopodium album*. **Plant Physiology and Biochemistry 49: 898-908.**

- **Noor-Ul-Haq,** Sitwat Aman, Rashid Minhas, Dawn S. Luthe, Samina Shakeel (2011). Reference gene for normalization of heat induced expression in *C. album*. **International Journal of Cell & Molecular Biology (IJCMB) 2(2): 522-531.**

ABSTRACTS & POSTERS

- ***Noor ul Haq,*** Zia Ullah Khan, Xin-Guang Zhu. Low Intercellular CO_2: Causes for C4 related Features in Rice. 1st National Conference on Recent Innovations in Medicinal Chemistry and Biochemistry in University of Science and Technology, Bannu, Khyber-Pakhtunkhwa, Pakistan. **February 20-22, 2018.**

- Zia Ullah Khan, Nasir Mehmood Khan, ***Noor ul Haq,*** Amjad Iqbal, Naimat Ullah Khan, Rahat Ullah Khan. Suppression of Cell Wall Degrading Enzymes in Button Mushrooms (*Agaricus Bisporus*) during Postharvest Storage by $CaCl_2$ and Citric Acid. 1st National

Conference on Recent Innovations in Medicinal Chemistry and Biochemistry in University of Science and Technology, Bannu, Khyber-Pakhtunkhwa, Pakistan. **February 20-22, 2018.**

- ***Noor ul Haq*** and *Xin-Guang Zhu*. Evolution in Photosynthesis under Low CO_2 Growth Conditions: The Way from C3 towards C4 Pathway. 1st National Conference on Sustainable Development through Biodiversity Conservation and Ecotourism in University of Science and Technology Bannu, Khyber-Pakhtunkhwa, Pakistan. **December 11-13, 2017.**

- ***Noor ul Haq,*** *Ming-Ju Amy Lyu* and *Xin-Guang Zhu*. Evolution of C4 Photosynthesis: Causes and Pre-Conditions in C3 Model Plant. Conference on Computational Biology and Genomics at Centre for Human Genetics, Hazara University, Mansehra, Khyber-Pakhtunkhwa, Pakistan. **September 27-29, 2017.**

- ***Noor ul Haq,*** *Ming-Ju Amy Lyu* and *Xin-Guang Zhu*. A mechanistic linkage between low CO_2 and evolution of C4 photosynthesis. First National Conference on Emerging Trends in Bioinformatics and Biosciences (NCETBB-2017) at Department of BioInformatics, Hazara University, Mansehra, Khyber-Pakhtunkhwa, Pakistan. **July 20-22, 2017.**

- *Sarah Rizwan Qazi,* ***Noor ul Haq,*** *Shakeel Ahmad* and *Samina N Shakeel*. HSEAT: A Tool for Plant Heat Shock Element Analysis, Motif Identification and Analysis. *14th Eurasia Conference on Chemical Sciences* at International Center for Chemical and Biological Sciences, University of Karachi, Pakistan. **December 15-18, 2016.**

- Zia Ullah Khan, Muhammad Azam, Asad Ali, Basharat Ali, Nasir Mehmood Khan, ***Noor ul Haq***. Composite Chemical Treatment Reduces Loss of Quality of Button Mushroom *(A. bisporus)* During Postharvest Storage. 2nd International Conference on Horticultural Sciences. **February 18-20, 2016. Abstract # ICHS2016/AB_413.**

- ***Noor Ul Haq,*** Mingzhu Lv, Zhu X-G. The role of long-term low CO_2 in the evolution of C4 photosynthesis. *Plant and Animal Genome XXIII Conference*. **January 10-14, 2015,** San Diago, California.

- ***Noor Ul Haq;*** *Sitwat Aman; Dawn S Luthe; Samina N Shakeel.* Novel architecture of promoter of C. album Chloroplast Small Heat Shock Proteins is related to its expression under different abiotic stresses. **Abstract # P01015.** The American Society of Plant Biologists: Plant Biology 2013 (July 20-24) http://precis.preciscentral.com/utils/ip/ShowSummary.asp?AbstractId=508&Presenter=

- *Samina N Shakeel, Zhiyong Gao, Madiha Amir, Yi-Feng Chen,* ***Noor Ul Haq,*** *G Eric Schaller.* Characterization of the ethylene receptor/CTR1 signaling complex of *Arabidopsis*. **Abstract # P16012.** The American Society of Plant Biologists: Plant Biology 2013 (July 20-24). http://precis.preciscentral.com/utils/ip/ShowSummary.asp?AbstractId=501&Presenter=

- *Samina N. Shakeel, Sitwat Aman,* ***Noor-ul-Haq,*** *Scott A. Heckathorn, Dawn Luthe-Proteomic and transcriptomic approach to explore the molecular basis of adaptation of agave* **(OPBB-24).**

12th National and 3rd International Conference of Botany September 1st to 3rd 2012. http://www.pakbs.org/Downloads/2012_ICB_Abstract_Book_Complete.pdf.

- ***Ul Haq, Noor,*** *Ammar, M., Raza, Sana, Amir, Madiha, Luthe, Dawn, Heckathorn, Scott, Shakeel, Samina*. Multiple roles of *C. album* small heat-shock protein: Protecting Photosystem II from oxidative stress under different abiotic stresses. **Abs # P09018**. *The American Society of Plant Biologists: Plant Biology 2011* (http://abstracts.aspb.org/pb2011/public/P09/P09018.html).

Aman, Sitwat, ***Ul Haq, Noor,*** *Dawn, Luthe, Shakeel, Samina*. Validation of reference genes as internal control for studying abiotic stresses in *C. album* by real-time RT-PCR. **Abs # P06040**. *The American Society of Plant Biologists: Plant Biology 2011* (http://abstracts.aspb.org/pb2011/public/P06/P06040.html).

NOVEL SEQUENCE SUBMITTED TO GENE BANK

- Sitwat Aman, ***Noor Ul Haq,*** Samina Shakeel. Identification and validation of internal control genes in *C.album* under abiotic stresses. **Gene Bank Accession # KC898957, KC898958, KC898959, KC898960, KC898961, KC898962.**

- Aman, S., ***Haq, N. U.*** and Shakeel, S. **Title:** Sequencing of 18S rRNA Gene to use as an Internal Control in *Agave Americana*. **Gene Bank Accession # HM991824.**

- ***Ul Haq, N.,*** Raza, S., Luthe, D. S., Heckathorn, S. A. and Shakeel, S. N. **Title:** A dual role for the chloroplast small heat shock protein of *Chenopodium album* including protection from both heat and metal stress. **Gene Bank Accession # JX073659.**

- Shakeel, S. N., ***Ul Haq, N.,*** Heckathorn, S. and Luthe, D. S. **Title:** Analysis of gene sequences indicates that quantity not quality of chloroplast small HSPs improves thermotolerance in C4 and CAM plants. **Gen Bank Accession # JQ671431, JQ671432, JQ671429, JQ671430.**

INVITED TALK:

- Low Intercellular CO_2: Causes for C4 related Features in Rice. 1st National Conference on Recent Innovations in Medicinal Chemistry and Biochemistry in University of Science and Technology, Bannu, Khyber-Pakhtunkhwa, Pakistan. **February 20-22, 2018.**

- Evolution in Photosynthesis under Low CO_2 Growth Conditions: The Way from C3 towards C4 Pathway. 1st National Conference on Sustainable Development through Biodiversity Conservation and Ecotourism in University of Science and Technology Bannu, Khyber-Pakhtunkhwa, Pakistan. **December 11-13, 2017.**

ORAL PRESENTATIONS:

- ***Noor ul Haq,*** Zia Ullah Khan, Xin-Guang Zhu. Low Intercellular CO_2: Causes for C4 related Features in Rice. 1st National Conference on Recent Innovations in Medicinal Chemistry and Biochemistry in University of Science and Technology, Bannu, Khyber-Pakhtunkhwa, Pakistan. **February 20-22, 2018.**

- ***Noor ul Haq,*** *Ming-Ju Amy Lyu* and *Xin-Guang Zhu*. Evolution of C4 Photosynthesis: Causes and Pre-Conditions in C3 Model Plant. Conference on Computational Biology and Genomics at Centre for Human Genetics, Hazara University, Mansehra, Khyber-Pakhtunkhwa, Pakistan. **September 27-29, 2017.**

- ***Noor ul Haq,*** *Ming-Ju Amy Lyu* and *Xin-Guang Zhu*. A mechanistic linkage between low CO_2 and evolution of C4 photosynthesis. First National Conference on Emerging Trends in Bioinformatics and Biosciences (NCETBB-2017) at Department of BioInformatics, Hazara University, Mansehra, Khyber-Pakhtunkhwa, Pakistan. **July 20-22, 2017.**

- *Samina N Shakeel, Sitwat Aman,* ***Noor Ul Haq,*** *Scott A. Heckathorn and Dawn Luthe.* Proteomic and transcriptomic approach to explore the molecular basis of adaptation of Agave americana to heat stress. 12th National and 3rd International Conference of Botany, **September 1-3, 2012.**

- *Sitwat Aman,* ***Noor Ul Haq,*** *Dawn Luthe and Samina Shakeel.* Validation of reference genes as internal control for studying abiotic stresses in *C.album* by real-time RT-PCR. The Annual Meeting of The American Society of Plant Biologists, Minneapolis, Minnesota, USA, **August 6-10, 2011".**

- *Samina Shakeel,* ***Noor-Ul-Haq,*** *Dawn Luthe.* Proteomics approach to explore different genes playing important role under abiotic stress in plants. International Workshop on Frontiers In Molecular Biology & Biotechnology, **March 28-30, 2011** organized by OIC Ministerial standing committee on Scientific and Technological cooperation (COMSTECH).

- Samina N. Shakeel, ***Noor Ul Haq,*** Tahir M. Proteomics approach to study the abiotic stress on plants. International Thematic Workshop at International Thematic Workshop on Recent Advances in Abiotic Stress Tolerance in Plants, **October 9-11, 2009.** COMSTECH Secretariat, Islamabad, Pakistan.

- ***Noor-Ul-Haq,*** *Samina Shakeel.* Gene identification of Chloroplast small heat shock proteins of *Agave* under heat stress. 9th Biennial PSBMB conference on advances in Biochemistry and Molecular Biology, **December 17-20, 2008.**

CONFERENCES AND WORKSHOPS ATTENDED

- 1st National Conference on Recent Innovations in Medicinal Chemistry and Biochemistry in University of Science and Technology, Bannu, Khyber-Pakhtunkhwa, Pakistan. **February 20-22, 2018.**

- 1st National Conference on Sustainable Development through Biodiversity Conservation and Ecotourism in University of Science and Technology Bannu, Khyber-Pakhtunkhwa, Pakistan. **December 11-13, 2017.**

- Conference on Computational Biology and Genomics at Centre for Human Genetics, Hazara University, Mansehra, Khyber-Pakhtunkhwa, Pakistan. **September 27-29, 2017.**

- First National Conference on Emerging Trends in Bioinformatics and Biosciences (NCETBB-2017) at Department of BioInformatics, Hazara University, Mansehra, Khyber-Pakhtunkhwa, Pakistan. **July 20-22, 2017.**

- 8th one Day Workshop on the Significance of Bioinformatics in Life Sciences **(May 13, 2017)** in Capital University of Science and Technology (CUST), Islamabad.

- 12th National and 3rd International Conference of Botany. **September 1-3, 2012.** Quaid-i-Azam University 45320, Islamabad, Pakistan.

- One day workshop on Bioinformatics in Muhammad Ali Jinnah University, Islamabad Pakistan **(8th May 2010).**

- Workshop on "International thematic workshop on recent advances in plant Abiotic stress tolerance" COMSTECH secretariat, Islamabad, Pakistan **(September 8-10, 2009).**

- 9th Biennial PSBMB conference on advances in Biochemistry and Molecular Biology, **December 17-20, 2008.**

ACADEMICS RELATED DUTIES AS AN EXPERT

- M.Phil/PhD Thesis evaluator for the **Department of Biotechnology, Kohat University of Science and Technology** (http://kust.edu.pk/), Kohat, Khyber-Pakhtunkhwa, Pakistan.
- BS/M.Phil/PhD Thesis evaluator for the **Department of Biotechnology, University of Science and Technology** (http://ustb.edu.pk/)**,** Bannu, Khyber-Pakhtunkhwa, Pakistan.
- M.Phil/PhD Thesis evaluator for the **Department of Botany, University of Science and Technology** (http://ustb.edu.pk/)**,** Bannu, Khyber-Pakhtunkhwa, Pakistan.

PROFESSIONAL EXPERIENCE:

- One year working experience in Biochemistry laboratory of Pakistan Institute of medical Sciences (PIMS), Islamabad (2007-2008).

- One year experience as a Chemistry Analyst in Quality Control and Quality Assurance of Technovision Pharmaceuticals, Islamabad, Pakistan (2006-2007).

REFERENCES:

1) Dr. Xinguang Zhu,
PI during Post-Doc (zhuxinguang@picb.ac.cn),
CAS-MPG Partner Institute of Computational Biology (PICB),
Shanghai Institute of Biological Sciences (SIBS),
Shanghai 200031, P. R. China.

2) Dr. Samina Shakeel,
PhD Advisor, (snq@qau.edu.pk, snq28@yahoo.com),
Department of Biochemistry, Faculty of Biological Sciences,
Quaid-i-Azam University (http://www.qau.edu.pk), Pakistan.

3) Dr. George Eric Schaller,
Research Advisor during IRSIP Training (george.e.schaller@dartmouth.edu),
Department of Biological Sciences,
Dartmouth College (http://www.dartmouth.edu), USA.

4) Dr. Wasim Ahmad,
(Teacher), (wahmad@qau.edu.pk),
Department of Biochemistry, Faculty of Biological Sciences,
Quaid-i-Azam University (http://www.qau.edu.pk/), Pakistan.

Dr. MUHAMMAD ZUBAIR

Assistant Professor
Khushal Khan Khattak University, Karak, Pakistan
E-mail: dr.muhammadzubair@kkkuk.edu.pk, **Mobile:** +92-3339402025

Telecommunication expert with vast experience in both academia and industry lines. An accomplished IT professional with demonstrated success implementing strategic. Takes initiatives that improve business functionality with positive impacts on the bottom line. Skilled project manager, with proven ability to lead and motivate teams to maximize productivity. Extensive experience in technology savvy, a self- starter, readily adepts new environments and extrapolate from existing experience to quickly acclimatize to new technology. Possess first- rate communications and collaboration skills to lead and work in concert with divers groups effectively.

QUALIFICATION HIGHLIGHTS

- Telecommunication Engineering
- Telecommunication Strategy Development
- Multiple Platform Networking
- Operations Management
- System integration
- Migration/ Upgrades
- Information Technology
- Project Management
- Technical Analysis

TECHNICAL EXPERTISE

Certifications: JNCIA-EX, JNCIA-ER, JNCIS-ER, MCSE, CCNA
Operating Systems: Android, Windows, Linux and UNIX.
Hardware: Raspberri pi 3**,** Wireless handheld devices (iPHONE, Samsung, Blackberry, Lenovo, Nokia, Cisco 4000m/3600/3000/2600/1600 series Routers, Cisco 2900 series Switches, 3Com & Netgear Switches, Hub, Laptops & Workstations & Servers (HP, Dell, Micron, Compaq, IBM), Raid, SCSI, Modems, Network Cards, Memory, Printers, Plotters, Scanners and other peripherals
Software: One Simulator**,** Opnet Simulation Tool, MATLAB, Endnote, Exchange 5.5 & 2000, Lotus Notes Client and Server R4 & R5, Rumba, Citrix Client & Server, Windows Terminal Server, MS Proxy Server, MS IIS Server, Pervasive SQL 7.0 & 2000, Cisco IOS, Seagate Backup Exec, McAfee, Norton, PC Anywhere, Reachout, MS Office Suit, Primavera Project Planner P3 2.0 & 3.0 , Visio 5.0 & 2000, Acrobat
Networks/Protocols:
MIPv6/FMIPv6/HMIPv6/ProxyMIPv6/SIP/LAN/WAN,TCP/IP,IPX/SPX,WLINK,NETBEUL,WINS,DNS,DHCP,POP3,SMTP,FTP,TELNET,VPN,ICMP,RIP,NAT,IGRP,TFTP,Ethernet

EDUCATION

PhD in Communication and Information System (21 years) **2011-2014**
Faculty of Electronics and Electrical Engineering
Dalian University of Technology, China
MS in Computer Science (18 years) **2009-2011**
Department of Computer Science, University of Peshawar, Pakistan
Specialization in Computer Networks
Master in Computer Science (16 years) **2005-2007**
Department of Computer Science, University of Peshawar, Pakistan

Bachelor in Computer Science (14 years) **2003-2005**
University of Peshawar, Pakistan
Higher Secondary School Certificate (12 years) **2001-2003**
Federal Board of Intermediate and Secondary Education (FBISE), Islamabad, Pakistan
Secondary School Certificate (10 years) **1999-2001**
Federal Board of Intermediate and Secondary Education (FBISE), Islamabad, Pakistan

RESEARCH EXPERIENCE

Research Interests

- Wireless Communication
- Future Networks
- Internet of Things
- Mobile Networks
- Next Generation Networks(4G Networks)
- Social Networks
- QoS and Security in Next Generation Networks
- Mobility Management in Future Networks (Mobile IPv6, HMIPv6, IDMP, FMIPv6, Proxy MIPv6, Distributed Mobility Management)
- Application Layer protocol (Session Initiation Protocol)
- Combination of SIP with the above mentioned mobility protocols to enhance the QoS in NGN.
- Comparison of the above combinations in order to achieve single best combination which provides best performance among the all.
- Characteristics of Packets delays and characteristics of information rate in NGN.
- Protocol operation based performance analysis.

Publications

Muhammad Zubair, Kong Xiangwei, and Saeed Mahfooz "DMAM: Distributed Mobility and Authentication Mechanism in Next Generation Networks," *Security and Communication Networks*, 8(5), (2015): 845-863: Science Citation Index Expanded (Thomson Reuters), Engineering Index (EI).

- **Muhammad Zubair**, Xiangwei Kong, Irum Jamshed, and Muhammad Ali. "Integrating SIP with F-HMIPv6 to Enhance End-to-End QoS in Next Generation Networks," *Advances in Intelligent Systems and Computing*, 240, (2014): 715-725: ISI Proceedings (Thomson Reuters), Engineering Index (EI).

Muhammad Zubair, Xiangwei Kong, Saeed Mahfooz, and Irum Jamshed. "SIDP: A Secure Inter-domain Distributed PMIPv6," *International Journal of Information and Electronics Engineering (IJIEE)*, 4(2), (March, 2014): 103-110: Engineering Index (EI).

 Muhammad Zubair, Xiangwei Kong, and Saeed Mahfooz. “Cross-layer Localized Mobility Management based on SIP and HMIPv6 in Next Generation Networks,” *Journal of Communications*, 9(3), (March, 2014): 217-225: Engineering Index (EI).

 Muhammad Zubair, Xiangwei Kong, and Saeed Mahfooz. “Secure Session Mobility using Hierarchical Authentication Key Management in Next Generation Networks” *Journal of Networks*, 9(5), (May, 2014): 1121-1131: Emerging Science Citation Index (Thomson Reuters), Engineering Index (EI).

 Muhammad Zubair, Xiangwei Kong, and Saeed Mahfooz. “CLAM: Cross-layer Localized Authentication Mechanism based on Proxy MIPv6 and SIP in Next Generation Networks,” *Journal of Communications*, 9 (2), (February, 2014): 144-156: Engineering Index (EI).

 Zubair, M.; Mahfooz, S.; Khan, A.; ur Rehman, W.; , "Providing end-to-end QoS in Next Generation Networks (NGNs) using combined SIP HMIPv6 (CSH)," *2011 IEEE International Conference on Computer Networks and Information Technology (ICCNIT),* pp.113-118, 11-13 July 2011 doi: 10.1109/ICCNIT.2011.6020916

 Jamil S, Ahmed S, **Zubair M**, et al. “COPE: Cooperative Power and Energy-efficient routing protocol for Wireless Sensor Networks”, IEEE/ACIS 14th International Conference on Computer and Information Science (ICIS’15), June 28 2015-July 1 2015, 2015.

 M. Amin, L. Song, X. Wang, **M. Zubair**, J. Hussain, T. Mohammad, “GPA: Graphical Interface Based Path coefficient analysis”, *8th Conference on Extreme Value Analysis*, *Fudan University, Shanghai, P.R. China*, 8- 12 July, 2013.

Submitted Manuscripts

 Muhammad Zubair, Kong Xiangwei, and Saeed Mahfooz, “SN-DMM: Secure Network-based Distributed Mobility Management”, *Submitted to IEEE Access*.

 Muhammad Zubair, Kong Xiangwei, Saeed Mahfooz, Irum Jamshed, “A Lightweight Reciprocal Authentication Mechanism to Secure Mobility in Next Generation Networks”, Submitted to *Computer Communications.*

Seminars/Workshops/Conferences

 Organized Session on “Technologies for Electronics and Communication Sector) in Third Annual Invention to Innovation Summit KP, 2017 at Peshawar in collaboration with Institute of Research Promotion, Pakistan Science Foundation, PASTIC, and South Asian Triple Helix Association

 Participated in Consultative Workshop on “University-Industry Collaborative Interactions: Policy and Practical Implications for Pakistan” on 4 January, 2017, Islamabad

 Organized Two Days workshop on “Mining Safety, 2017” at Kohat in collaboration with SMEDA

 Organized One Day workshop on “ Marketing Management, 2017” at Khushal Khan Khattak University, Karak in collaboration with SMEDA

 Organized Session on “Technologies for Electronics and Communication Sector) in Second Annual Invention to Innovation Summit KP, 2016 at Peshawar in collaboration with Institute of Research Promotion, Pakistan Science Foundation, PASTIC, and South Asian Triple Helix Association

 Organized Two Days Workshop on “Olive Grafting, 2016” at Lower Dir in collaboration with Small Medium Enterprise Development Authority (SMEDA), Pakistan Oil Seed Development Board(PODB) and Olive Grower Association Dir.

 Organized Two Days Workshop on “freelancing, 2016” at Khushal Khan Khattak University, Karak

 Organized Workshop on “Intellectual Property, Innovation, and Commercialization, 2015” at Khushal Khan Khattak University, Karak

Attended training workshop on Intellectual Property Rights held on Oct 16-17, 2015, organized by HEC and IM Sciences, sponsored by World Bank.

 Attended Consultative Workshop on Commercialization of Technologies: Challenges & Way Forward held on 3rd November, 2015 at University of Haripur, KP.

 Presented “Are We Ready for Future Networks? Vision and Research Challenges of Future Networks”, ETIT- 2015

 Presented *“Secure Distributed Mobility Management based Future Networks: A Landscape of Competing Approaches”* Khushal Khan Khattak University, Karak-2015

 Presented *“Secure Distributed Mobility Management based Future Networks: A Landscape of Competing Approaches”* Sarhad University-2015.

 Presented *“Secure Distributed Mobility Management Based Future Networks*”, ETIT-2013.

 Presented *“Enhanced EAP-Based Pre-Authentication in WiMAX Networks*”, School of Information and Communication Engineering, Dalian University of Technology, China, Jan, 2013

 Presented *“Intensifying QoS and Security in Next Generation Network*,” ETIT-2012.

 Presented *“Authentication Mechanism in NGNs”*, School of Information and Communication Engineering Dalian University of Technology, Dalian, China.

 Presented *“Providing end to end QoS in NGNs using Combined SIP HMIPv6(CSH)”,* IEEE Conference ICCNIT-2011

PROFESSIONAL EXPERIENCE

Khushal Khan Khattak University, Karak, Pakistan
18, May 2015 – Present
Assistant Professor
- Research and Teaching

22, Aug 2015 – 09-Feb, 2017
Director ORIC (Office of Research, Innovation & Commercialization)
Sarhad University of Science and Information Technology, Peshawar, Pakistan
Jan 2015 – 17 May, 2015
Assistant Professor
- Research and Teaching

Pakistan Air Force (Fazaia) Degree College, Peshawar, Pakistan

Head of Computer Science Department (Aug 2008 – Aug 2011)/ Teacher (Feb 2006- Aug 2008)
Held multifaceted responsibilities to configure, install and administer network infrastructure and telecommunications systems that supported staff of 250 employees and 2500 students. Established net IT policies, which defined acceptable use of IT assets within the organization. Fulfilled administrative responsibilities including the additions and changes to user desktop, email and PBX accounts. Installed and configure servers including RAIDI & 5 arrays in addition to facilitating backup & restoration using NT utility. Configured and monitored status of printers utilizing HP jet admin in addition to upgrading printer firmware and handling installation of other peripherals. Actively provided desktop, configuration and phone support for software and hardware. Carried out full installation of Cisco routers and cabling for routers, switches, hubs and new workspaces.

- Three Labs each with 30 nodes were working under my supervision. We were running Both Linux (RHEL4) and Windows (2003 Advance server) machines for Web caching and domain controller, Exchange server respectively.
- Successfully engineered a Virtual Private Network (VPN) solution utilizing Windows 2000 Server.
- Effectively consolidated multi-domain Windows NT network into a single, homogeneous domain.
- We have established a LAN controlled by a Cisco 4000m series router and Cisco 2900 switches with efficiently working Access Controlled List.
- We were also connected with Pakistan Air Force Headquarters which are controlling all Fazaia colleges Database Software.
- Implementation of E-Testing in Fazaia Chains of Schools/Colleges in Pakistan.
- Teaching to Graduate Students.
- Supervision of Computer Science Department staff.
- Assessment and evaluation of Computer Science Department Staff

Pakistan Literacy Development Center (PLDC)
Nov 2005 - March 2006
Project Manager
- Project Management and Training employees practically in Labs

Projects

- **Khushal Khan Khattak University, Karak**
- **Khushal Karak: Build Smart District Project**

KHUSHAL KARAK- Build Smart District Project has approved by the competent forum and is a step to bring a revolution in society through use of Information and Communication Technologies (ICTs). Under this project, the university will go for ICT enabled HUBs at local levels with the coordinated involvement of University, Students, Industry, Technology Partners, and Public Sector Departments at District level. Project would help to pool our strengths and resources in a target area and to utilize our strengths like Entrepreneur youth/students, to make a ' Success Story '.

- **Khushal Centre for Chinese Language and Culture**

KCCLC has got approval in response of China Pakistan Economic Corridor. KCCLC will cover a wide range of subjects of interest and intensive research to increase awareness about Chinese Language, socio-cultural, economic, and political system; promote bilateral relations, and most importantly provide strategic guidance in pursuit of common objectives both regionally as well as internationally. Pakistan China friendship has a bright future and CPEC is a step to make its stronger. This centre will contribute in terms of capacity building and will focus to resolve Environmental impact of the CPEC. Further, Language is a bridge that connects people and this Centre would play a key role in bringing the people of China and Pakistan close.

- **Intellectual Property Awareness Program (IPAP)**

IPAP has been approved by the competent forum and is a step to raise awareness of the protection of Intellectual Property Rights through patents, copyright, trademarks and industrial designs among students, faculty, and staff. The said initiative will help to protect and encourage innovations that are taking place in Khushal Khan Khattak University. The University will organize different sessions to make aware the aforementioned audience about legal coverage while enforcing the trademark, copyright and patent infringement laws.

- **Olive Grafting, Plantation and Value Chain Program in District Karak**

Khushal Khan Khattak University, Karak in collaboration with SMEDA and PODB initiated a comprehensive community mobilization program regarding olive grating, plantation and value chain. The notables from communities after having exposure visits to Edible Olive Bearing districts are motivated to start the olive top working in their groves. Olive Pruning and Orchard Management trainings are conducted. This resulted a very positive change in community and started demanding olive grafting and plantation. Total of 1000 Plants are grafted at Tarki Khel and Speena of District Karak and till date 80% success are reported. Additionally, the olive orchards are initiated and

around 1000 plants are planted at Latamber area, Khushal Khan Khattak University, karak, and plantation at other areas of District Karak are in process

- **IoT Based Interactive Controlling of Campus Devices**

The project aims to manage all the electric/electronics devices remotely through smart phones. The management will be user oriented and devices themselves. By the user oriented means, an authenticated user will manage devices through app. And by the devices themselves means, different sensors will be used to sense the environment and as per analysis of data in clouds, devices will take decision.

- **Pashto Speech Recognition System to Control Computer Programs**

This project aims that the user will interact with the computer and control programs remotely through Pashto language. Speech recognition technique is used to recognize the commands given in Pashto and then convert them into understandable form provided to the software (for performing the action) as input. The user will have freedom from clicking the menus, button etc and can manage the Computer programs remotely. Pashto dictionary is developed to assist the system in recognizing the Pashto vocabulary.

• Pakistan Air Force, Peshawar, Pakistan

- My job was to establish a secure and reliable network. I have managed a 90 node network for 40 days in which candidates were registering and giving online test.
- SIMS (Student Information Management System) Management.
- I have assigned to implement E-Testing in Fazaia Chains of School/Colleges.
- Implementation of **EUREKA** software in Pakistan Air Force Chains of Schools and Colleges.
- Arranged and Supervised In-Service Teacher Training program summer 2007 in PAF Degree College, Peshawar
- Arranged and Supervised In-Service Teacher Training program summer 2008 in PAF Degree College, Peshawar.
- Arranged and Supervised In-Service Teacher Training program summer 2009 in PAF Degree College, Peshawar.

- Arranged and Supervised In-Service Teacher Training program summer 2010 in PAF Degree College, Peshawar.

• P.A.F Teacher Training Institute, Islamabad

- Suggested and made a frame work to implement Oxford Syllabi for Computer Science in FAZAIA Chains of Schools/Colleges in Pakistan.

- I have assigned to make Computer Science Papers for exams.

 Library Information Management System, Central Library University of Peshawar

- Coding and Designing of software for central Library University of Peshawar.

 Intel Education , Pakistan as Master Trainer

- I trained staff members of my institution (Pakistan Air Force Degree College Peshawar, Pakistan) about using computer technologies which includes Microsoft PowerPoint, Microsoft Word, internet and digital encyclopedia. Then I have trained them how to use these technologies in teaching practices.

Supervision

PhD Scholars One (In Progress)
MS Scholars Three (In Progress)
Undergraduate Eight (Graduated) Three (In Progress)

Established Industry/Academia Linkages

- KP Oil and Gas Company Limited (Signed)
- The Bank of Khyber
- Oil and Gas Company Limited (OGDCL), Pakistan
- Small & Medium Enterprise Development Authority (SMEDA)
- Olive Grower Association Dir
- Pakistan Oilseed Development Board
- Gypsum Industry, Karak
- Wuhan University of Technology, China
- Dalian University of Technology, China
- Ghulam Ishaq Khan Insititute (GIK), Pakistan

Achievement

 Got the title of Entrepreneurial Scientist along with the inclusion to the list of Top Twenty Entrepreneurial Scientists by South Asian Triple Helix Association (SATHA), published in the Book "Entrepreneurial Scientists-serving Science and Society"

 South Asian Triple Helix Association (SATHA) Award in 3rd Invention to Innovation Summit KP, 2017
 Technology Award for the project “IoT based Interactive Controlling System of Devices” in 3rd Invention to Innovation Summit KP, 2017
 Technology Award for the project “Pashto Speech Recognition System” in 3rd Invention to Innovation Summit KP, 2017
 Technology Innovation Award in Second Annual Invention to Innovation Summit KP, 2016
 Established Office of Research, Innovation & Commercialization at Khushal Khan Khattak University, Karak
 Established Khushal Business Incubation Centre at Khushal Khan Khattak University, Karak
 Twice appreciated by the Syndicate, Khushal Khan Khattak University, Karak for initiating business startups.
 Obtained Chinese Government Scholarship for PhD
 Selected in youth delegation Pak-China Youth Exchange Program by the Ministry of Youth, Government of Pakistan.
 Best employee for the year 2008-2009 by Base Commander P.A.F Base Peshawar.
 Position Holder in Master of Science - Computer Science
 Position Holder in Bachelor of Science - Computer Science

Membership

 Member of Academic Council, KKKUK
 Secretary Annual Report Preparation Committee, KKKUK
 Secretary University Infrastructure Need Assessment Committee, KKKUK
 Secretary Research Journal Committee, Khushal Khan Khan Khattak University, Karak
 Coordinator Dalian University of Technology (DUT) Pakistan Alumni Association
 Vice President International Students Association, Dalian University of Technology, China
 Chairman, International Voices, Dalian University of Technology, China
 Member, IEEE
 Member of Doctor’s Association Dalian University of Technology, Dalian China.
 Member of Future Youth Group Pakistan as General Secretary for Khyber Pukhtunkhwa.
 Member of Career Management Society Pakistan.
 Former Member of IT Society University of Peshawar.

Languages

 Pashto
 English
 Urdu
 Chinese

Personal Information

Father Name: Abdul Hameed
Date of Birth: February 1, 1986
Marital Status: Married

References

Prof. Kong Xiangwei (Ph.D)

School of Information and Communication Engineering Dalian University of Technology, Dalian, China
E-mail: Kongxw@dlut.edu.cn
Cell: 008613019459205
Prof. Dr. Saeed Mahfooz
Department of Computer Science, University of Peshawar, Pakistan
E-mail: saeedmahfooz@upesh.edu.pk

Dr. Siddiq Ur Rahman (HEC Approved PhD Supervisor)

Affiliation:
Department of Computer Science & Bioinformatics,

Khushal Khan Khattak University,

Karak, KPK, Pakistan.

E-mail: Siddiqur.rahman@kkkuk.edu.pk

Siddiqbiotec88@gmail.com

Cell: +92-3459117731

PROFILE:

I am a purposeful and dedicated individual who has a great deal of ambition. I have strong will to achieve results, love to learn and am always up to a challenge. I get along well with others, while also working efficiently on my own. I like new responsibilities, adverse working environment and like to work on a position where I can develop and excel while giving my best to the employer.

Personal Profile

Father Name:	Bakhtawar khan
Religion:	Islam
Nationality:	Pakistani

Education

Qualification Background

Certificates	Year	%age	Grade/ Position	Name of Institution/Board/University
Ph.D. (Bioinformatics)	2015-2018	81	A1	Northwest A&F University China
M.sc (Hons) (Biochemistry and Molecular Biology)	2013-2015	82	A1	Northwest A&F University China
Chinese Language Course	2012-2013	80	A1	Northwest A&F University China
B.S. (Hons) (Biotechnology)	2007-2011	74	A	University of Malakand Pakistan
Intermediate (Pre-Medical)	2004-2007	75	A	Govt: Post Graduate Jahanzeb College Swat / BISE Swat
Matric	2003-2004	72	A	Malakand Public School Dargai / BISE Malakand
HSK (Chinese Language Test)	2013	70	A	Beijing language Center

Publications	LIST OF SELECTED PUBLICATONS
2022	Bei C, Dinh DV, Dinh GV, Thi TXB, **Rahman SU**, Mai PP, Minh TN, Van SN, Syed NMS, Viet HT. Genetic diversity and population structure of Cinnamomum balansae Lecomte inferred by microsatellites. Open Life Sciences, 17: 323–332
2022	**Rahman SU**, Abdullah M, Khan AW, Haq MIU, Haq NU, Aziz A, Tao SH. A detailed comparative analysis of codon usage bias in Alongshan virus. Virus Research, 308, 198646. IF= 3.32 (**Corresponding author**)
2021	Khan RU, Ali N, Rahman IU, **Rahman SU**. Predicting the impacts of climate change on the potential distribution pattern of endangered Himalayan natives (*Ulmus wallichiana* and *U. villosa*) in Pakistan. Arabian Journal of Geosciences, 14:2638. IF= 1.82 (**Corresponding author**)
2021	Hung TN, Wang D, **Rahman SU**, Bai HX, Yao XT, Chen DK, Tao SH. Analysis of Codon Usage Patterns and Influencing Factors in Rice Tungro Bacilliform Virus. Infection, Genetics and Evolution, 2021, 104750. IF= 2.9 (**First contributed author**)
2020	Yao XT, Fan Q, Yao B, Lu P, **Rahman SU**, Chen DK, Tao SH. Codon usage bias analyses of Bluetongue virus causing livestock infection. Frontiers in Microbiology, 2020, 11:655. IF= 4.3
2020	Wang H, Chen W, Sinumvayabo N, Li Y, Han Z, Tian J, Ma Q, Pan Z, Geng Z, Yang S, Kang M, **Rahman SU**, Yang G, Zhang Y. Phosphorus deficiency induces root proliferation and Cd absorption but inhibits Cd tolerance and Cd translocation in roots of Populus × euramericana. Ecotoxicology and Environmental Safety, 2020, 204, 111148. IF=4.87
2019	Li XC, Wang H, Tong WJ, Feng L, Wang L, **Rahman SU,** Wei GH, Tao SH. Exploring the evolutionary dynamics of Rhizobium plasmids through bipartite network analysis. Environmental Microbiology, 2019, 22: 934-951. IF= 5.14
2020	Yang C, Qiu WW, Chen ZX, Chen WY, Li YF, Zhu JL, **Rahman SU**, Han ZX, Jiang Y, Yang GJ, Tian J, Ma Q. Phosphorus and N:P ratio influence Cd phytoextraction in Populus via modulating xylem development, cell wall Cd storage and antioxidant defense. Chemosphere, 2020, 242: 125-154. IF= 5.10

2019	Zhang SM, Yang C, Chen MM, Chen J, Pan YH, Chen YL, **Rahman SU**, Zhang Y. Influence of nitrogen availability on Cd accumulation and acclimation strategy of Popu lus leaves under Cd exposure. Ecotoxicology and Environmental Safety, 2019 180: 439-448. IF= 3.97
2019	Li LJ, Che DX, Wang XD, Zhang P, **Rahman SU**, Hua JL, Zhao JB, Yu JT, Tao SH, Lu H, Liao MZ. CellSim: a novel software to calculate cell similarity and identify their co-regulation networks. BMC Bioinformatics. 2019, 20: 1-9. IF= 2.3
2019	Yao MY, **Rahman SU,** Wang A, Ma T, Raza SHA, Mehmood R, Liu YL, Tao SH. Evolutionary Analysis of F-box Gene Family in *Saccharomycetaceae.* DNA and Cell Biology, 2019, 38: 333-340. IF= 3.18 (**First contributed author**)
2019	Kalantar M, Schreurs NM, Raza SHA, Khan RW, Ahmed JZ, Yaghobfar A, Shah MA, Kalantar MH, Hosseini SM, **Rahman SU**. Effect of different cereal-based diets supplemented with multi-enzyme blend on growth performance villus structure and gene expression (SGLT1, GLUT2, PepT1 and MUC2) in the small intestine of broiler chickens. Gene Reports, 2019, 15: 1-8.
2018	Zhang WJ, Huai Y, Miao ZP, Chen C, Shahen M, **Rahman SU**, Alagawany M, El-Hack MEA, Zhao H, Qian A. Systems pharmacology approach to investigate the molecular mechanisms of herb Rhodiola rosea L. radix. Drug Development and Industrial Pharmacy, 2018, 45: 456-464. IF= 2.3
2018	Bui TTX, Lu M, Vu DD, Dinh HN, Ullah N, **Rahman SU**, Huang XH, Zhang Y. Physiological responses of *Toxicodendron vernicifluum* (Stokes) F.A. Barkley to cadmium stress under sufficient- and deficient-nitrogen conditions. Trees, 2018, 32: 1457-1471. IF= 1.78
2018	Li XC, Tong WJ, Wang L, **Rahman SU**, Wei GH, Tao SH. A novel strategy for detecting recent horizontal gene transfer and its application to Rhizobium strains. Frontiers in Microbiology, 2018, 9: 1-13. IF= 4.07
2018	**Rahman SU**, Yao XT, Li XC, Chen DK, Tao SH. Analysis of codon usage bias of Crimean-Congo Haemorrhagic fever virus and its adaptation to hosts. Infection, Genetics and Evolution, 2018, 58:1-16. IF= 2.9
2018	Wei DW, Raza SHA, Zhang JP, Gui LS, **Rahman SU**, Khan RW, Hosseini SM, Kaleri

2017	HA, Zan LS. Polymorphism in promoter of SIX4 gene shows association with its transcription and body measurement traits in Qinchuan cattle. Gene, 2018, 656: 9-16. IF= 2.41
2017	**Rahman SU**, Mao YH, Tao SH. Codon usage bias and evolutionary analyses of Zika virus genomes. Genes and Genomics, 2017, 39: 855-866. IF= 0.6
2017	Liu HL**, Rahman SU**, Mao YH, XU XD, Tao SH. Codon Usage Bias In 5' terminal Coding Sequences Reveals Distinct Enrichment of Gene Functions. Genomics, 2017, 109: 506-513. IF= 6.12 (**First contributed author**)
2017	Zheng HF, Zhang X, Ma WJ, Song JY, **Rahman SU**, Wang JH, Zhang Y. Morphological and physiological responses to cyclic drought in two contrasting genotypes of *Catalpa bungei*. Environmental and Experimental Botany, 2017. 138: 77-87. IF= 4.36
2017	Shi HL, Ma WJ, Song JY, Lu M, **Rahman SU**, Bui TTX, Vu DD, Zheng HF, Wang JH, Zhang Y. Physiological and transcriptional responses of Catalpa bungei to drought stress under sufficient- and deficient-nitrogen conditions. Tree Physiology. 2017, 37: 1457-1468, IF= 3.65
Conference report (published (2016))	Potential disease conditions and symptoms associated with medication related to diabetic patients in Bangladesh. Ferdous MRU, Mukti M, Rahman AHMM, Saran LH, Rashid MMU, **Rahman SU**. 3rd Euro-Global Experts Meeting on Medical Case Reports June 30-July 02, 2016 Valencia, Spain.
2015	Meng XW, Wang C, **Rahman SU**, Wang YX, Wang A and Tao SH. Genome-Wide Identification and Evolution of HECT Genes in Soybean. International Journal of Molecular Science, 2015, 16: 8517-8535. IF= 3.2
2012	Baloch AW, Ejaz M, Ahmad I, Wasila H, Baloch MJ, Baloch GA, Yasir TA, **Rahman SU,** Hayat S, Shah SNM, Khan MA. Development of superior f1 hybrids: design-ii analysis for estimating combining ability of Fiber and earliness in upland cotton. Global Journal of Biodiversity Science and Management, 2012, 2(1): 38-42.
	SUBMITTED / UNDER REVIEW ARTICLES
Under review	Yao XT, Xie YF, Guan X, Ni S, Zuo CX, **Rahman SU**, Chen DK, Ma WT. Evolution of codon usage in 2019-new coronavirus causing human infection. Emerging Microbes

	& Infections.
	ARTICLES PREPARING FOR SUBMISSION
	Yuanhui Mao, **Siddiq Ur Rahman**, HuiLing Liu, Gehong Wei, Shiheng Tao. Analysis of ribosome profiling data reveals a universal codon frequency bias during translation. "**EMBO report**" (IF: 8.997) (First contributed author)
	SELECTED COURSES/CONFERENCES/WORKSHOP
Participated	One Week training Workshop on "How to Transform Curricula and Teaching Practices" held from 09 May to 13 May 2022 sponsored by US-Pakistan University Partnerships Grants Program 2020-2023 Funded by the United States Government.
Invited Speaker	1st National Conference "Microbiology, Infectious Diseases and Health Safety" held from 3-5th April, 2019 at University of Swabi, entitled "Use of latest bioinformatics tool in tracing epidemiological niche of infectious agents"
Resource Person	One Day Workshop on "Reference Management Software" held on 30 October, 2019 at Khushal Khan Khattak University, Karak.
Invited Speaker	The international Joint Conference on Genetics and Medicine 2018, arranged by "**The Genetics Society of Korea**" at the *The-K Hotel Seoul*, Seoul, Korea November 29-30, 2018.
Course attended	Institut Pasteur International Network Asia-Pacific Teaching Course **"Pathogenesis of Infectious Diseases"** at the Institut Pasteur of Shanghai (Chinese Academy of Sciences) on 4th- 18th May 2017.
Symposium	International symposium on **"The Belt and Road" Bio-health Agriculture** held by College of Life sciences, Northwest A&F University on 23-25 July, 2017
Poster presentation	4th Conference on **"Computational Biology and Genomics"** held by Hazara University, Mansehra on 27-29 September, 2017.
Workshop attended:	First National Conference on **"Recent Trends in Microbiology"** organized by Department of Microbiology, Abbottabad University of Science & Technology on 20-21 December, 2016.
Poster presentation	First National Conference on **"Recent Trends in Microbiology"** organized by Department of Microbiology, Abbottabad University of Science & Technology on 20-

Oral Presentation	21 December, 2016. Second National Conference on "Emerging Trends in Bioinformatics and Biosciences" (NCETBB-2018) held by Hazara University, Mansehra on August 09-11, 2018.
	On-Going Projects
Completed project	Phylogenetic, evolution and codon usage bias analysis of Bluetongue virus causing livestock's infection. HEC funded. 0.5 Million. Collaboration Project on the **Kawasaki disease** with Women and Children Hospital, Guangzhou and Pasture institute Shanghai- Chinese Academy of Science, Shanghai, China.
	Countries Visited
Job Experience: (October 2018 – September 2019)	➢ China ➢ Korea ➢ Qatar
	PROFESSIONAL EXPERIENCE
Current Status: In charge Research Assistant:	Assistant Professor (IPFP) Dept. of Computer science & Bioinformatics Khushal Khan Khattak University Karak, Pakistan **Job Description:** • Teaching to undergraduate students. • Supervising undergraduate students in Bioinformatics for research, theses, and research papers write-up Khushal Center for Chinese Language and Culture Instructor: Chinese Language Course Bioinformatics Center, College of Life Science, Northwest A&F University, Yangling, Shaanxi, China, March 2014 to June 2018.

RESEARCH INTEREST

- Host-pathogen interactions in a different emerging pathogen, using functional genomics and bioinformatics.
- Using bioinformatics tools for unknown pathogen discovery and evolutionary study.
- Good experience of handling big data/ NGS analysis.
- Investigating functions of mRNA secondary structure and codon usage bias during translation elongation.

WORK EXPERIENCE

Programming/ Software:

Using **Python**, **R**, Modeling, Simulation, Origin pro, Circus.

Skilled in SPPS, and STATA (statistical procedures related to descriptive, analytical and quantitative research in Biomedical Sciences)

Lab Experience

Working Experience in Tissue culture lab, Laminar flow, PCR, DNA Extraction, UV Spectrophotometer, Centrifugation, Microbial culture, Gel Electrophoresis, water filtration machine, Autoclave

MEMBERSHIP OF PROFESSIONAL SOCIETIES

- Member of the Board of Studies for BS(BI) & MS(BI), Department of CS & BI, Khushal Khan Khattak University, Karak.
- Member, World Society for Virology (WSV)

Associate Editor for the Journal "Insights in Biotechnology and Bioinformatics"

Reviewer: Computational Biology and Bioinformatics (Science Publishing Group)

COMPLETED RESEARCH PROJECTS

Undergraduate (BS(HONS)) Thesis title: Effect of N-fertilizer and EDTA on maize (*Zea mays*) growth on metals polluted soil and phytoextraction of Pb and Cd.

Master Thesis Title: Optimized tRNA allocation partially explains efficient translation in Sa*ccharomyces cerevisiae.*

PhD Thesis Title: Codon usage bias and evolutionary analyses of Zika, and Crimean-Congo Hemorrhagic fever virus genomes and its adaptation to hosts.

REFERENCE

Dr. Shiheng Tao (Director & Professor, Centre of Bioinformatics)

Northwest A&F University China **Email:** Shihengt@nwsuaf.edu.cn

Dr. Fazal Hadi (Associate Professor, Department of Biotechnology)

University of Malakand, Pakistan **Email**: fazalbiotech@yahoo.com

Dr. Irshad Ahmad (**Associate Professor, Department of Life Sciences**)

King Fahad University of Petroleum & Minerals. **Email:** Irshad@kfupm.edu.sa

HONORS & AWARDS

Award

Scholarships

Best Lecture Award and Cash Prize from "**The Genetics Society of Korea**" **2018**.

Special scholarships for Malakand division students got in BSc (Hons).

China Scholarship council MSc (Hons)

Northwest A& F University Scholarship (PhD)

Got First position in "Volleyball" competition intercollege competition organized by Northwest A&F University China, September 2015.

LANGUAGES

- Speak, Read and Write (English)
- Speak, Read and Write (Chinese)
- Speak, Read and Write (Urdu)
- Speak, Read and Write (Pashto)

Ghani-ur-rehman

Objective

To secure a responsible position in a reputable organization to flourish my knowledge and capabilities in a team based environment and coordinate efforts in order to achieve personal aims, contributing to organizational overall success.

Personal Information

Name:	Ghani-ur-rehman
Father Name:	Aziz-ur-rehman
Date of Birth:	05-02-1984
Domicile:	Karak (KPK, Pakistan)
N.I.C:	14203-5001032-9
Religion:	Islam
Marital Status:	married

Contact Information

Cell:	0344-9464273
Phone#	0304-9269696
Email:	Ghani.rehman@kkkuk.edu.pk

Present Address: Lecturer Computer Science, Khushal Khan Khattak University, Karak, KPK, Pakistan.

Permanent Address: Village Warana Mir Hassan Khel P/o Warana Tehsil Takhat-e-Nasrati Distt Karak.

Academic Qualifications

PhD in Computer Science **Session 2012-2015**

Department of Computer Science,

International Islamic University, H-10 Islamabad.

Division **1st (CGPA 3.5)**

Status: (Course work completed)

MS in Computer Science **Session 2008-2011**

Department of Computer Science,

International Islamic University, H-10 Islamabad.

Division **1st (CGPA 3.85, 80%)**

BS 4 years in Computer Science **Session 2002 - 2006**

Kohat University of Science & Technology, Kohat.

Division **1st (3387/4400, 78%)**

F. Sc (Pre-Engineering) **Session 2000-2002**

BISE, Kohat.

GPG College Kohat.

Division: **1st (748/1100 68%)**

SSC (Science) **Session 1999-2000**

BISE, Peshawar

Hira High School, Karak.

Division: **1st (549/850, 65%)**

MS Thesis

"A Packet Drop Guesser Module for Congestion Control Protocols for High Speed N/w"

Research Publications

1. **Rehman.G**, Asif.M, & Israr.U ;(2013). "Improvement of congestion window and link utilization of High Speed protocols through K-NN Module", *IOSR Journal of Computer Engineering (IOSR-JCE)*, vol 12, PP 25-30. **(Published)**

2. **Rehman.G**, Asif.M, & Israr.U; (2013). "A packet drop guesser module for congestion control Protocols for high speed networks" *International Journal of Computer Science, Engineering and Information Technology (JCSEIT), vol 3, PP 21-32.* **(Published)**

3. Asif.M, **Rehman.G**, & Israr.U; (2013). "Simulation based evaluation of a simple channel distribution Scheme for MANETs" *IOSR Journal of Computer Engineering (IOSR-JCE)*, vol 12, PP 55-62. **(Published)**

4. Khan.I, Usman.I, Usman.T, **Rehman.G**, Rehman. A. (2013). "Intelligent Churn prediction for Telecommunication Industry," *International Journal of Innovation and Applied Studies*, vol. 4, pp. 165–170, September 2013. **(Published)**

5. **Rehman.G***, Muhammad.S, Zia.A, Rehman.S and Asif.M (2014). "SCALABLITY ANALYSIS OF MPLS LABEL DISTRIBUTION PROTOCOLS RSVP", 2nd International Conference on Computational and Social Sciences (ICCSS-2014), 254-259. **(Published)**

6. Rehman.S, **Rehman.G**, Haider.A, and Afzal.M.T, (2014)."MEASURING THE RELEVANCY BETWEEN TAGS & CITATION IN SOCIAL WEB", Accepted in Research Journal of Applied Sciences, Engineering and Technology, ISSN: 2040-7459 , ISI Indexed. **(Published)**

7. **Rehman.G**, Asif.M, Jan.R, Muhammad.S, and Ahmad.I (2014). "Simulation Based Study to Present the Performance of Ad-hoc Routing Protocols", International Journal of Innovation and Applied Studies ISSN 2028-9324 Vol. 5 No. 3 Mar. 2014, pp. 261-268.

Accepted Papers for Publications

1. Usman.T, **Rehman.G**, Muhammad.S, Taj.F; (2013) "Performance Enhancement Handover of VoIP Application Wireless LAN IEEE 802.11n" *Journal of Computing, USA,* vol 5. **(Accepted)**

1. Muhammad.S, **Rehman.G**, Usman.T, Taj.F; (2013) "Simulation Based Evaluation of Routing Protocols

for Ad Hoc Networks" *Journal of Computing, USA,* vol 5. **(Accepted)**

hing Interests

At under graduate level

- Data Communication, Computer Networks, Operating System, Data Base, C++, Automata Theory, Software Engineering.

At Graduate level

- N/w communication, Wireless Communication, Satellite Communication, Adhoc & Sensor Networks.
- Research Methods

Job Experience

- Network Assistant in Higher Education Department Peshawar (2007-2008) under NIP.
-
- Contract Lecturer (Computer science) in Federal Urdu University of Science, Arts and Technology, Islamabad from Jan 2012 to Jan 2013.
- Head of Department Computer Science Khan Khattak University, Karak from Jan 2013 to Jan 2014.
- Currently working as Lecturer (Computer Science) in Khushal Khan Khattak University, Karak from Jan 2013 till date.

Hobbies and Languages

Hobbies:

- Studying books
- Internet surfing
- Game (Cricket)

Languages:

- English
- Urdu
- Pashto

Professional Training

(1) MCSE (Corvit Institute Islamabad)

(2) CCNA (Corvit Institute Islamabad)

TARIQ USMAN

+92-346-7867280
tariq_star75@hotmail.com
tariq.usman@kkkuk.edu.pk

MS Computer Science

More than 08 year teaching and professional experience

CAREER OBJECTIVE/ FUTURE PLAN

To achieve dynamic position in an esteemed institution /organization of professional being that correlates with my occupational skills and offer challenging opportunities. I look forward to fully utilize my professional skills and enhance my learning capabilities, to transfer my research and theoretical knowledge, technical skills, training and related experience to students and technical people.

EXPERIENCE

Lecturer in CS

I am working as Lecturer in department of computer Science Khushal Khan Khattak University Karak Khyber Pakhtun Khwa Pakistan(Public Sector University) since 06 Feb,2013 to date.

Major Responsibilities:

- To teach at undergraduate and graduate level in areas allocated by the Head of Department and reviewed from time to time by the Head of Department.
- To contribute to the development, planning and implementation of a high quality curriculum.
- To assist in the development of learning materials, preparing schemes of work and maintaining records to monitor student progress, achievement and attendance.
- To participate in departmental and faculty seminars aimed at

sharing research outcomes and building interdisciplinary collaboration within and outside the department.

- To participate in the development, administration and marking of exams and other assessments.
- **Extra Responsibilities : Staff Proctor , QEC member**

Technical Assistant

I have worked as Technical Assistant in Automation Project Central Directorate of National Savings Govt. of Pakistan from 31 October 2011 to 04 Feb,2013

Responsible for:-

- Installing hardware and software
- Maintaining Oracle 10g database
- Installing Operating Systems
- Resolved all IT issues
- Troubleshooting
- Inventories of IT and Electric equipments
- Creating logs of Servers and Generators
- IT Training to manual staff and DEOs
- Quick response to DEOs
- Making reports on daily and monthly basis
- Database backup

IT Officer

I have worked as IT Officer in CANDLE Organization since 02 February, 2011 to 25 October 2011

Responsible for:-

- System maintaining and upgrading
- Data Analysis ,
- Purchasing all IT equipments
- Handles all network and Internet problems
- Estimation (Financial Proposal writing)
- Website handling
- Training to IT assistants and Database Assistant

System Administrator

I have worked as System Administrator in Fazaia Inter College E-9 PAF Complex AHQ Islamabad from 11 November, 2008 to 31 January 2011.

Responsible for:-

- Installing and Managing Servers

- Maintaining and Upgrading Servers
- Configuring and Managing Switches and Routers
- Trouble Shooting all Software ,Hardware & Network Problems
- Managing Student Information Management System Software
- Managing ,Backup and Run Queries on SQL Database System
- Availability of Internet on all computers
- Installing Hardware and Software
- Installing Windows and Linux Operating Systems
- Installing and Updating Antivirus
- Backup of official data on weekly and monthly basis
- Handle PAF E-mail and Intranet System
- Availability of Printer / Multimedia / Scanner / Computer any where require for college activities/functions
- Responsible of emergency SMS to all staff and students through Internet (SIMS module)
- Training of Technical people to use Student Information Management System software and computer effectively
- Purchasing of all IT equipments for college
- Letters correspondence of college
- Analysis of college data: students/staff wise, expenses/loss and profit wise
- Presentation for Principal
- Incharge for e-testing examination in college by AHQ
- Responsible of all IT tasks.

IT Assistant

I have worked as IT Assistant in Relief International from 02 April, 2007 to 31 December, 2007

Responsible for:-

- Operating System Installation and Maintaining
- Antivirus installation and updating
- MS Office work
- Software and Hardware Installation
- Multimedia Setting

TRAINING

Name of Institution	Type of Training	Duration	Certificate
Khushal Khan Khattak University Karak And HEC	Professional Competency Enhancement Program	One month	Yes

Directorate of Information Technology Khyber Pakhtunkhwa Govt. , Pakistan	Train the Trainer CCNA	One month	Yes

EXTRA SKILLS

- MCSE Corvit System F-6 Islamabad
- CCNA Corvit System F-6 Islamabad
- Desktop Technologies and Web Technologies
- Spoken English Language Course British Training Council , F-8 Islamabad
- MS Office
- MS Project

ACADEMIC QUALIFICATIONS

Degree/Certificate	Subjects/Courses	Year	Institute/Board	CGPA /Division
MS(CS)	Computer Science	2008-2010	Iqra University, Islamabad.	3.09/1st
BS(IT)	Information Technology	2003-2007	Gomal University D. I. Khan	1st
HSSC	Pre-Medical	2002	Govt College Kohat. BISE Kohat	1st
SSC	Science	2000	BISE, Peshawar.	1st

RESEARCH & PROJECT

Projects:

BS Final Year Project:
Developed a Desktop Application for WAPDA Customers Billing System for District Karak
Programming Language: VB 6.0, SQL Database, and Crystal Reports

MS Research Thesis:

Study of Transport Layer Handover of VoIP Application over Wireless LAN (IEEE 802.11g) Networking Simulation Tool: - NS-2, OS: - Red Hat Linux Server Enterprise 5.2 Edition

Research Article:

1. Khan.I, Usman.I, **Usman.T**, Rehman.G, Rehman. A. (2013). "Intelligent Churn prediction for Telecommunication Industry," *International Journal of Innovation and Applied Studies*, vol. 4, pp. 165–170, September 2013. (Published)
2. **Usman.T**, Rehman.G, Muhammad.S, Taj.F; (2013) "Performance Enhancement Handover of VoIP Application Wireless LAN IEEE 802.11n" *Journal of Computing, USA,* vol 5. (Accepted)

3. Muhammad.S, Rehman.G, **Usman.T**, Taj.F; (2013) "Simulation Based Evaluation of Routing Protocols for Ad Hoc Networks" *Journal of Computing, USA,* vol 5. (Accepted)

LANGUAGES KNOWN

- English (Write/Read/Speak [Excellent])
- Urdu (Write/Read/Speak [Excellent])
- Pashto (Mother Tongue)

PERSONAL INFORMATION'S

Father's Name: Muhammad Saboor

Domicile: Karak (Khyber Pakhtunkhwa, Pakistan)

R E S U M E

ABDULLAH KHAN

S/O AMAL DAD KHAN

Date of Birth: 01-04-1989

N I C No: 11101-6188569-1

Nationality: Pakistani

Religion: Islam

Gender: Male

Domicile: F .R Bannu

Marital Status: Unmarried

Contact Number : 0342-9500643

Email Address: abdwz@yahoo.com

Address:

Village Sar Dhal Khel , P/O Qammar Killa, Teh Domel, Dist Bannu,

(Khyber Pakhtunkhwa) Pakistan.

OBJECTIVE:

I believe in devotion to work hard and testing my professional knowledge in creating opportunities in any competitive environment.

ACADEMIC QUALIFICATION

Exam	Session	Marks Obtained	Annual/ Supply	Div / Grade	Board / University
S.S.C	2004	601/850	Annual	1st Div (71%)/A	B.I.S.E Bannu
F.SC	2006	695/1100	Annual	1st Div (63%)/B	B.I.S.E Bannu
BSCS(Hons) 4 –year	2006-2010	3218/4100	Annual	1st Div (78%)/A	UST Bannu

EXTRA QUALIFICATION

Exam	Marks Obtained	Div / Grade	Board / University
MS in Computer Science	3.16/04 GPA	1st Div(79%)/A	IIT, KUST

PROFESSIONAL QUALIFICATION

Exam	Session	Marks Obtained	Annual/ Supply	Div/Grade	Board / University
B. Ed	2013	886/1200	Annual	1st Div (73%)/A	SUIT Peshawar

EXPERIENCE

1- 6 years and 2 months experience as a Computer Instructor (BPS-16) Cum Computer Lab Incharge and WWB MIS Operator in WFGHSS-Karak (Male).

2- 2 years experience of working on different projects with university students.

COMPUTER-RELATED SKILLS

- Great Command of SQL Server(2000 & 2005)
- Visual Studio 2005 & 2008
- Computer Languages (C,C++, Visual Basic.NET, HTML, ASP.Net, C#, Assembly Language, Java)

LANGUAGES

- **Urdu** Excellent in reading, writing and speaking
- **English** Excellent in reading, writing and speaking
- **Pashto** Excellent in reading, and speaking

DISTINGUISH FEATURES

- **Flexible, Motivated and Team player.**
- **Ability to handle multi-dimensional task**
- **Excellent Communication Skills**
- **Fluency in English and Local Languages**
- **Under-take responsibility easily & confidently**

HOBBIES

Traveling, Reading Books, News Papers and Net Surfing.