



SHAH ABDUL LATIF UNIVERSITY
KHAIRPUR



SELF-ASSESSMENT REPORT (SAR)
(2022)
INSTITUTE OF CHEMISTRY

Degree Program:

BS-IV Years

Re-Submitted to:

Quality Enhancement Cell (QEC) Shah Abdul Latif University, Khairpur

By

Program Team (PT) Members:

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INSTITUTE OF CHEMISTRY

INTRODUCTION

The Institute of Chemistry is one of the largest and 2nd oldest disciplines catering state of the art education in chemical sciences. The Institute of chemistry has played vital role as nucleus among all disciplines of sciences particularly in biological/chemical sciences. The previous triumphs of chemistry include the synthesis of pharmaceuticals and agricultural products, while current challenges include chemical memory, solar cells, superconductors, clean fuels, batteries, and the solution of numerous important problems relating to health and the environment. Understanding of Chemistry is significant and substantial in oday's era of constant scientific discovery which is shaped by revolutionary new technologies. The chemical sciences are essential to overcome the global problems of today's world which covers all the branches of Chemistry.

The institute of chemistry is setting up its graduates who can meet the challenges of the corporate sector around the globe. We are proud to mention our graduates are serving on the leading positions in pharmaceutical industries, atomic energy commission, health, and environmental agencies, power sector, polymer and plastic industries, sugar industries, academic and research positions in national and international organizations. The Institute aims at producing professionals with a strong background in theoretical and practical chemistry at the graduate and post-graduate levels. It strives to produce graduates who can contribute and upgrade existing technological activities in the country and their professional brilliance is inseparable from commitment to the national goals.

Institute of Chemistry offering Specialization in many branches including Organic, Inorganic, Physical Chemistry, and Analytical Chemistry while in Applied Chemistry and Environmental Chemistry during 2022 the Institute is planning to start the specialization i-e for which syllabus has been prepared and approved.

In every academic year, about 120 graduate students will be enrolled purely on base of merit in the morning shift while more than 80 students will be offered admission in the evening shift. Institute also offered admission of 35 students in MS/M.Phil and 15 students in the Ph.D. program. At this stage, more than 300 students have completed their research work and have been awarded MS/M.Phil degrees and the rest of them are engaged in their research activities such as experimental work and thesis writing. Similarly, good numbers of Ph.D. students have also been awarded the degree in the discipline of Chemistry while many more are in the final stage of completion of degree

VISION

The Institute of Chemistry envisions that amalgam of knowledge and modern technology in education, not only enhance the academic advancement but also pave an orientation to the applied research that can benefit the national and international community.

MISSION

Institute of Chemistry is committed to produce knowledgeable graduates having necessary skills to seek meaningful careers in various fields of interest.

PROGRAMS OFFERED

1. BS (Four year) Morning
2. MS/M.Phil
3. Ph.D.

Criterion 1: Program Mission, Objective and Outcomes.

Standards 1.1: The program must have documented measurable Objectives that support Faculty / Institution Mission Statements.

Mission Statement of the University:

- ✓ To provide affordable and accessible quality Under-Graduate, Graduate and Post-Graduate degree Programs, national and international in scope.
- ✓ To care and promote quality research environment provide consulting faculties to industrial/Business and services sector with a realization of needs of community and national responsibility towards economic growth and welfare.
- ✓ To build national character and put focus on production of quality graduates to contribute in the economic, Industrial and social development of the country.
- ✓ To promote a campus environment that welcomes and honor women and men and an atmosphere that values intellectual curiosity, pursuit of knowledge, and academic freedom and integrity.

Mission Statement of the Institute:

Institute of Chemistry is committed to produce knowledgeable graduates having excellent success in seeking meaningful careers in academia, Chemical, Pharmaceutical. Environmental Industries and non-government organization related to physical and life science and in placement to graduate programs at other universities.

Program Objectives:

Table 1. Shows how Objectives are measured and Improvements have been identified			
Program Objectives Assessment			
Objectives	How Measured	When Measured	Improvement Identified
Develop an Understanding of the Chemistry and its interaction with matter	Excessive teaching of text at length	Since the start of session	Students are tested by examination
Become prepared for careers in Chemistry and related fields	Transfer of knowledge and practical exercise	Routinely in well equipped chemistry labs	Experiments are performed check the ability
Develop discipline in their personal life to lead organization	Extra classes are conducted by professor of the field and practical performed on various equipment	Throughout BS and M.S Program	Behavior is observed by assigning them related activities.
Carry out independent laboratory investigations o research problems	Final year students are given small research project/ assignments to complete	To publish the work done in research journals	Final year studies

Note: Improvement Made: This will be informed after AT visits.

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.

Table: 2. The following Table shows how program outcomes support the Program Outcomes.

Program Objectives	Program Outcomes		
	1.	2.	3.
Develop an understanding of the Chemistry and Chemical behavior of matter	Students reached in the field of research and development organization are performing very well	_____	_____
Become prepared for careers in chemistry and related fields	Students qualify GRE	Working in research organizations	_____
Develop discipline in their personal life to lead organization	Progress reports from supervisors are satisfactory	_____	_____
Make them able to setup and operate various scientific equipment used in the field of Chemistry	Graduates are using sophisticated equipment in research organizations with full confidence and success	_____	_____

Program Objectives		Program Outcomes		
		1	2	3
Develop an understanding of the Chemistry and chemical behavior of matter		XXXX	XXX	XXX
Become prepared for careers in chemistry and related fields		XXX	XXX	XXX
Develop discipline in their personal life to lead organization		XXXX	XXX	XXX
Make them able to setup and operate various scientific equipment used in the field of chemistry		XXXX	XXXX	XXX
X	Relevant & satisfactory to some extent			
XX	Relevant & satisfactory			
XXX	Very relevant & satisfactory			
XXXX	Highly relevant & highly satisfactory			

Standard 1-3. The result of program's assessment and the extent to which they are used to improve the program must be documented.

Major Future Improvement Plans:

- ❖ To impart quality education in the department using audio visual aids and modern tools along with provision of latest literature, journals, books, reviews and access to internet.
- ❖ To upgrade Graduate & Post Graduate Laboratories with the modern & sophisticated equipments
- ❖ To emphasize problem oriented research work on specific areas related to plants.
- ❖ Overall enhancement of knowledge and skills of faculty members in relation to the latest global advancements in various discipline through exchange programs, short trainings and collaborative research projects within and outside country.

Table: 4. Shows Program Strengths & Weakness.

Program Strengths and weaknesses.				
Program	Strengths	Weaknesses	Things to be developed	Activities taken for improvements
BS-I to BS-IV Major & Minors	Major Chemistry Subject	Business communications and Communication Skills	Computer Labs Lecture Hall with Audiovisual adds Well equipped analytical lab	Research are sent to concerned centers

- ❖ **Standard 1.4:** The department must assess its overall performance periodically using quantifiable measures.

Table: 5. Number of student enrolment during last three years and student faculty ratio:

Program	Year 2020	Students/ Faculty Ratio	Year 2021	Students/ Faculty Ratio	Year 2022	Students/ Faculty Ratio
BS-IV	480	24:1	510	18.2:1	500	16.6:1
Total	480		510		500	

Table: 7. Number of publications, awards, workshops & seminars organized by the faculty:

Publications (HEC recognized only)		Research Projects		Monograph	Awards	Scholars produced		Organized National & International Conferences
National	Internati onal	Completed	Ongoing			M.Phil	Ph.D.	
25	12	----	03	----	----	35	10	01

Criterion 2: The curriculum must be designed and organized to achieve the program's objectives and outcomes. Also course objectives must be in line with the program outcomes.

Program:

SCHEDULE OF STUDIES FOR BS (FOUR-YEAR)

BS Part-I

Semester-I

Course No.	Course Title	Credit Hours	
		Theory	Practical
CHEM-310-311	Inorganic Chemistry	3	1
	Physics	3	0
	Computer Science	3	0
	Pakistan Studies	3	0
	English	3	0
	Pure /Functional Mathematics	3	0
	Total	18	01

Semester-II

Course No.	Course Title	Credit Hours	
		Theory	Practical
CHEM-312-313	Organic Chemistry	3	1
	Islamic Studies	2	0
	Physics	3	0
	Computer Science	3	0
	English	3	0
	Pure /Functional Mathematics	3	0
	Total	17	01

BS Part-II Semester -III

Course No.	Course Title	Credit Hours	
		Theory	Practical
CHEM-410	Environmental Chemistry	2	0
CHEM-411	Physical Chemistry	3	1
	Physics	3	0
	Computer Science	3	0
	English	3	0
	Pure /Functional Mathematics	3	0
	Total	17	01

Semester -IV

Course No.	Course Title	Credit Hours	
		Theory	Practical
CHEM-412	Industrial Chemistry	2	0
CHEM-413	Analytical Chemistry	2	0
CHEM-414	Biochemistry	2	0
	Physics	2	1
	Computer Science	2	1
	English	3	0
	Pure /Functional Mathematics	3	0
	Total	16	02

**BS Part-III
Semester –V**

Course No.	Course Title	Credit Hours	
		Theory	Practical
CHEM-500-505	Inorganic Chemistry	3	1
CHEM-501-505	Organic Chemistry	3	1
CHEM-502-505	Physical Chemistry	3	1
CHEM-503-505	Analytical /Biochemistry	3	1
	Total	12	04

Semester –VI

Course No.	Course Title	Credit Hours	
		Theory	Practical
CHEM-506-511	Inorganic Chemistry	3	1
CHEM-507-511	Organic Chemistry	3	1
CHEM-508-511	Physical Chemistry	3	1
CHEM-510-511	Analytical /Biochemistry	3	1
	Total	12	04

**BS Part-IV/M.Sc Final (Analytical Chemistry)
Semester –VII**

Course No.	Course Title	Credit Hours	
		Theory	Practical
CHEM-600	Atomic Spectroscopic	3	0
CHEM-602	Electro-analytical Techniques	3	0
CHEM-604	Advance Separation Techniques	3	0
CHEM-605	Practical	0	1
	Total	09	01

Semester –VIII

Course No.	Course Title	Credit Hours	
		Theory	Practical
CHEM-606	Luminescence Spectroscopy and Thermal Analysis	3	0
CHEM-608	Nuclear Analytical Techniques	3	0
CHEM-610	Food and Drug Analysis	3	0
CHEM-611	Practical	0	1
	Comprehensive Viva-Voce	0	3
	Total	09	04

**BS Part-IV/ M.Sc Final (Physical Chemistry)
Semester –VII**

Course No.	Course Title	Credit Hours	
		Theory	Practical
CHEM-630	Polymer Chemistry	3	0
CHEM-631	Electrochemistry and Statistical Thermodynamics	3	0
CHEM-632	Quantum Chemistry and Molecular Spectroscopy	3	0
CHEM-633	Practical	0	1
	Total	09	01

Semester –VIII

Course No.	Course Title	Credit Hours	
		Theory	Practical
CHEM-634	Colloid and Surface Chemistry	3	0
CHEM-635	Reaction Dynamics	3	0
CHEM-636	Radiation and Photo Chemistry	3	0
CHEM-637	Practical	0	1
CHEM-638	Comprehensive Viva-Voce	0	3
	Total	09	04

**BS Part-IV/ M.Sc Final (Inorganic Chemistry)
Semester –VII**

Course No.	Course Title	Credit Hours	
		Theory	Practical
CHEM-640	Inorganic Spectroscopy	3	0
CHEM-641	Inorganic Reaction Mechanism	3	0
CHEM-642	π Acceptor Ligands and Inorganic polymers chemistry	3	0
CHEM-643	Practicals	0	1
	Total	09	01

Semester –VIII

Course No.	Course Title	Credit Hours	
		Theory	Practical
CHEM-644	Organometallics	3	0
CHEM-645	Radio and Nuclear Chemistry	3	0
CHEM-646	Symmetry and Magnetochemistry	3	0
CHEM-647	Practical	0	1
CHEM-648	Comprehensive Viva-Voce	0	3
	Total	09	04

BS Part-IV/M.Sc Final (Organic Chemistry)**Semester –VII**

Course No.	Course Title	Credit Hours	
		Theory	Practical
CHEM-660	Organic Spectroscopy	3	0
CHEM-661	Heterocyclic and Organometallic compounds	3	0
CHEM-662	Reactive Intermediate	3	0
CHEM-663	Practical	0	1
	Total	09	01

Semester –VIII

Course No.	Course Title	Credit Hours	
		Theory	Practical
CHEM-664	Medicinal Chemistry	3	0
CHEM-665	Organic Synthesis	3	0
CHEM-666	Natural Products	3	0
CHEM-667	Practical	0	1
CHEM-668	Comprehensive Viva-Voce	0	3
	Total	09	04

BS Part-IV/ M.Sc Final (Environmental Chemistry)**Semester –VII**

Course No.	Course Title	Credit Hours	
		Theory	Practical
CHEM-669	Environmental Chemistry	3	0
CHEM-670	Environmental pollution	3	0
CHEM-671	Environmental Toxicology	3	0
CHEM-672	Practical (Analytical techniques in Environmental science)	0	1

	Total	09	01
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Semester –VIII

Course No.	Course Title	Credit Hours	
		Theory	Practical
CHEM-673	Air and Noise Pollution	3	0
CHEM-674	Environmental Monitoring	3	0
CHEM-675	Environmental Impact Assessment	3	0
CHEM-676	Practical (Pollution control Technologies)	0	1
CHEM-677	Comprehensive Viva-Voce	0	1
	Total	09	02

**BS Part-IV/M.Sc Final (Applied Chemistry)
Semester –VII**

Course No.	Course Title	Credit Hours	
		Theory	Practical
CHEM-678	Common Industries-I	3	0
CHEM-679	Agro Based Industries and Pollution Control	3	0
CHEM-680	Common Industries-II	3	0
CHEM-681	Lab (Practical)	0	1
	Total	09	01

Course No.	Course Title	Credit Hours	
		Theory	Practical
CHEM-682	Organic Based Industries	3	0
CHEM-683	Industrial processes	3	0
CHEM-684	Metallurgy and Explosives	3	0
CHEM-685	Lab-II (Practical)	0	1
CHEM-686	Comprehensive Viva-Voce	0	1
	Total	09	02

MS/MPhil (2 Years, 4 Semesters)

1st Semester (Physical Chemistry)

Credit Hours 12

Course No.	Course Title	Credi Hrs.	Marks
CHEM-710	Research Methodology & Statistical Methods (Core Subject)	3	100
CHEM-711	Advanced Kinetics of Chemical Reaction & Photochemistry	3	100
CHEM-712	Physical Chemistry of Colloids Surfactants and Solutions	3	100
CHEM-713	Practical	3	100
	Total	12	400

1st Semester (Organic)

CHEM-710	Research Methodology & Statistical Methods (Core Subject)	3	100
CHEM-718	Advanced Synthetic Organic Chemistry	3	100
CHEM-719	Advanced Natural Products	3	100
CHEM-720	Practical	3	100
	Total	12	400

1st Semester (Inorganic)

CHEM-710	Research Methodology & Statistical Methods (Core Subject)	3	100
CHEM-724	Solid State Chemistry (Inorganic)	3	100
CHEM-725	Kinetics and Reaction Mechanism (Inorganic)	3	100
CHEM-726	Practical	3	100
	Total	12	400

1st Semester (**Analytical Chemistry**)

CHEM-710	Research Methodology & Statistical Methods (Core Subject)	3	100
CHEM-730	Atomic Spectroscopy	3	100
CHEM-731	Electro Analytical Techniques	3	100
CHEM-732	Practical	3	100
	Total	12	400

2nd Semester (**Physical Chemistry**)

Course No.	Course Title	Credit Hrs. E	Marks
CHEM-714	Instrumental Methods of Analysis (Core Subject)	3	100
CHEM-715	Biophysical Chemistry & Physical Chemistry of Environment	3	100
CHEM-716	Physical Chemistry of High Polymers and Composite materials	3	100
CHEM-717	Practical	3	100
	Total	12	400

2nd Semester (**Organic**)

CHEM-714	Instrumental Methods of Analysis (Core Subject)	3	100
CHEM-721	Advanced Stereochemistry	3	100
CHEM-722	Physico-organic Chemistry and Reaction Mechanism	3	100
CHEM-723	Practical	3	100
	Total	12	400

2nd Semester (**Inorganic**)

CHEM-714	Instrumental Methods of Analysis (Core Subject)	3	100
CHEM-727	Bioinorganic Chemistry	3	100
CHEM-728	Inorganic Environmental Chemistry	3	100
CHEM-729	Practical	3	100
	Total	12	400

2nd Semester (**Analytical Chemistry**)

CHEM-714	Instrumental Methods of Analysis (Core Subject)	3	100
CHEM-733	Chromatographic Techniques	3	100
CHEM-734	Thermal Methods of Analysis	3	100
CHEM-735	Practical	3	100
	Total	12	400

SCHEDULE OF STUDIES FOR Ph.D PROGRAM

1st Semester

Course No.	Course Title	Cr. Hr.	Marks
CHEM-800	Advanced Spectroscopy (Core Subject-I)	4	100
CHEM-801	Material Organic Chemistry (Optional)	4	100
CHEM-802	Inorganic Material Chemistry (Optional)	4	100
CHEM-803	Physical Material Chemistry (optional)	4	100

2nd Semester

CHEM-801	Separation Techniques and their Applications (core Subject-2)	4	100
CHEM-803	Advance Organic Polymer Chemistry (Optional-1)	3	100
CHEM-804	Organic Synthetic Chemistry (Optional-2)	3	100
CHEM-803	Advanced Electrochemical and Electro Analytical Technique (Optional-1)	3	100
CHEM-804	Statistical Thermodynamics & Reaction Dynamics (Optional-2)	3	100
CHEM-803	Medicinal Uses of inorganic compounds (Optional-2)	3	100
CHEM-804	Synthetic Inorganic Chemistry (Optional-2)	3	100

Total CH=18 (1st& 2nd Semester)

Note: The student opt their optional subjects as per their BS/M.Sc Final Degree

Standard: 2.1: The curriculum must be consistent and support the program's documented objectives.

Table: 8 Courses versus program outcomes

Courses/Group of Courses	Objectives		
	1	2	3
Research Methodology and report writing	The use knowledge to develop small projects	Completion of project is excellent outcome	
Analytical Chemistry	Students are motivated to work in chemical industry		
Current Trends in Chemistry	Students are given the latest knowledge of the subject	Motivated for the studies in new fields of studies	

Program Learning Outcomes	Program Objectives				
	Skills in critical thinking, Program solving and communication	Initiate and manage change	Understand Professional ethics and responsibility	Employ I. S. Technology	Enable organization to make optimal decision
Students can be able to work individually as well as in tem	X	X	X		X
Research oriented graduates	X		X		X
Self-determent and reliance Graduates		X	X		
The graduates produce to render their service in Chemical Industry & Technology	X	X	X		X
Capable to manage the renewable resources	X	X	X		X
Use up to date tools			X		
Lifelong learning	X		X		
Professional ethics and responsibility	X		X		X

Standard: 2.2. Theoretical background, problems analysis and solution design must be stressed within the program's core material.

Table: 8. Shows Theoretical background, problem analysis and solution of the courses.	
Elements	Courses
Theoretical background	Excellent
Problems analysis	Excellent

Solution design	Excellent
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Standard: 2.3: The curriculum must satisfy the core requirements for the program, as specified by the respective accreditation body. Examples of such requirements are given in Table A.1, Appendix A.

Standard 2-4: The curriculum must satisfy the major requirements for the program as specified by HEC, the respective accreditation body / councils. Examples of such requirements are given in Table A.1, Appendix A.

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. Examples of such requirements are given in Table A.1, Appendix A.

Minimum Requirements for Each Program

(Program Semester Credit Hours)

Program	Math & Basic Science	Engineering Topics	General Education	Others
BS – 4 Years	120	-----	16	-----

Standard 2-6: Information technology component of the curriculum must be integrated throughout the program.

Has the IT program been included in the course: Yes No

Standard 2-7: Oral and written communication skills of the student must be developed and applied in the program.

Is there any oral/written communication skills have been included in the program: Yes No

Criterion 3: Laboratories and Computing Facilities CLASS ROOMS AND LABORATORIES

Sr. No.	Courses	Number	Capacity
01.	Class Rooms BS-P-I	01	70 students
02.	Class Rooms BS-P-II	01	70 students
03.	Class Rooms BS-P-III	01	70 students
04.	Class Rooms BS-P-IV Analytical Chemistry	01 dual lab & class	40 students
05.	Class Rooms BS-P-IV Physical Chemistry	01 dual lab & class	40 students
06.	Class Rooms BS-P-IV Organic Chemistry	01 dual lab & class	40 students
07.	Class Rooms BS-P-IV Inorganic Chemistry	01 dual lab & class	40 students
08.	General Chem Lab	01	60 students
09.	General Physical lab	01	30 students
10.	Research laboratories	03	Ents available UV, AAS, FT-IR, HPLC, GC & NMR

Standards: 3-1: Laboratories and computing facilities must be adequately available and accessible to faculty members and students to support teaching and research activities.

Criterion 4: Student Support and Advising:

Students must have adequate support to complete the program in a timely manner and must have ample opportunity to interact with their instructors and receive timely advice about program requirements and career alternatives.

Standard: 4.1: Courses must be offered with sufficient frequency and number for students to complete the program in timely manner.

Table: 9. Shows classes/week of Major Courses offered in 4 –Year program.

Major Courses offered: BS. 4 Year Program, M.Sc. (Previous), & M.Phil/Ph.D.@ the Ratio of 4:3			
Course offered/Year	Semester	Classes/week /CrHs	Practical/week/CrHs
BS Part-I	1 st	16	02
BS Part-I	2 nd	17	01
BS Part-II	1 st	12	04
BS Part-II	2 nd	13	03
BS Part-III / M.Sc. (Previous)	1 st	11	05
BS Part-III / M.Sc. (Previous)	2 nd	14	02
BS Part-IV/ M.Sc. (Final)	1 st	14	04
BS Part-IV/ M.Sc. (Final)	2 nd	115	03

❖ The above mentioned classes are strictly followed throughout the academic year. The core courses, optional can be easily completed under the favorable environment.

4-Year BS: Program					
Subject:	Managed by:	Theory: Cr Hs/ Class.		Practical: Cr Hs/ Class.	
English	English Department	BS.I	1 st Semester	BS.I	1 st Semester
			4		1
			2 nd Semester		2 nd Semester
			3		--
		BS.II	1 st Semester	BS.II	1 st Semester
			4		--
			2 nd Semester		2 nd Semester
			3		--
Bio-Chemistry	Bio-Chemistry Department	BS.I	1 st Semester	BS.I	1 st Semester
			4		3
			2 nd Semester		2 nd Semester
			3		3
		BS.II	1 st Semester	BS.II	1 st Semester
			4		3
			2 nd Semester		2 nd Semester
			2		3
COMPUTER	Department Computer	BS.I	1 st Semester	BS.I	1 st Semester
			4		3
			2 nd Semester		2 nd Semester
			3		3
		BS.II	1 st Semester	BS.II	1 st Semester
			3		3
			2 nd Semester		2 nd Semester
			3		3
Mathematics	Department Mathematics	BS.I	1 st Semester	BS.I	1 st Semester
			3		--
			2 nd Semester		2 nd Semester
			3		--
		BS.II	1 st Semester	BS.II	1 st Semester
			3		--
			2 nd Semester		2 nd Semester
			4		--

Standard: 4:2. Courses in the major are must be structured to ensure effective interaction between students and faculty and teaching and teaching assistance?

(1) Well structured ✓

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.

Are students informed about program requirements?

(1) No (2) To some extent (3) Fully ✓

Does there student advising system exist and how effective it is?

(1) No (2) To some extent (3) Completely ✓

Have students access to professional counseling?

(1) No (2) To some extent (3) Full ✓

Do the students have interacted with practitioners and to have membership in technical & professional societies?

(1) No (2) To some extent ✓ (3) Full

Alumni Survey

(To be filled by Alumni- after the completion of each academic year)

Institute of Chemistry

Year: 2022

A: Excellent

B: Very Good

C: Good

D: Fair

E: Poor

S. NO	QUESTION	PERCENTAGE / STATUS				
1	Knowledge Did you learn?	A	B	C	D	E
1.1	Problem formulation and solving skills.	72%	22%	6%	0%	0%
1.2	Collecting and analyzing appropriate data.	78%	22%	0%	0%	0%
1.3	Ability to link theory to practice.	61%	39%	0%	0%	0%
1.4	Ability to design a system component or process	83%	17%	0%	0%	0%
1.5	IT knowledge	67%	33%	0%	0%	0%
2	Communications Skills					
2.1	Oral communication	78%	22%	0%	0%	0%
2.2	Report writing	83%	17%	0%	0%	0%
2.3	Presentation skills	75%	25%	0%	0%	0%
3	Interpersonal Skills.					
3.1	Ability to work in teams.	85%	15%	0%	0%	0%
3.2	Ability to work in arduous / challenging situation.	75%	25%	0%	0%	0%
3.3	Appreciation of ethical Values.	65%	35%	5%	0%	0%
4	Management / leadership Skills.					
4.1	Resource and Time management skills	74%	18%	8%	0%	0%
4.2	Judgment	67%	26%	07%	0%	0%
4.3	Discipline	72%	25%	3%	0%	0%

Employer Survey

(To be filled by Employer- after the completion of each academic year)

Institute of Chemistry

Year: **2022**

A: Excellent

B: Very Good

C: Good

D: Fair

E: Poor

S. NO	QUESTION	PERCENTAGE / STATUS					
1	Knowledge	A	B	C	D	E	
	1.1	Math, Science, Humanities and professional discipline, (if applicable)	56%	39%	6%	%	0%
	1.2	Problem formulation and solving skills	83%	10%	7%	0%	0%
	1.3	Collecting and analyzing appropriate data	79%	17%	5%	0%	0%
	1.4	Ability to link theory to Practice	75%	25%	0%	6%	0%
	1.5	Ability to design a system component or process	65%	32%	3%	6%	0%
	1.6	Computer knowledge	70%	25%	5%	0%	0%
2	Communications Skills						
	2.1	Oral communication	80%	15%	05%	0%	0%
	2.2	Report writing	65%	20%	10%	5%	0%
	2.3	Presentation skills	70%	20%	10%	0%	0%
3	Interpersonal Skills.						
	3.1	Ability to work in teams	65%	15%	15%	5%	0%
	3.2	Leadership	72%	25%	3%	0%	0%
	3.3	Independent thinking	78%	17%	3%	2%	0%
	3.4	Motivation	72%	20%	8%	0%	0%
	3.5	Reliability	72%	22%	6%	0%	0%
	3.6	Appreciation of ethical values	78%	17%	0%	6%	0%
4	Management / leadership Skills.						
	4.1	Resource and Time management skills	72%	22%	6%	0%	0%
	4.2	Judgment	70%	20%	10%	0%	0%
	4.3	Discipline	72%	22%	6%	0%	0%

Criterion 5: The processes by which major functions are delivered must be in place, controlled, periodically reviewed, evaluated and continuously improved. To meet this criterion a set of standards must be satisfied.

Standard 5:1. The process by which students are admitted to the program must be based on quantitative and qualitative criteria and Clearly documented.

Program/credit transfer: N.A.

Transfer of a student from outside the university: N.A.

Admission Criteria: The admission policy is constituted by the “Admission Committee” consists of Deans, and senior faculty members of the university. The departments have no any role. The departments follow policy made by them which is also mentioned in “**Prospectus of the university**”. However, the admission criteria are evaluated but not regularly.

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:

How frequently admission criteria are evaluated?

(1) None (2) Not regularly (3) **Every Year**√

Are the evaluated results used to improve the results?

(1) No (2) To some extent (3) **Yes** √

Is there any policy regarding program /credit transfer?

(1) **No** √ (2) To some extent (3) Well defined

Is there any mechanism of student’s registration in the program?

(1) No (2) To some extent (3) **Well defined** √

How frequently process of registration is monitored?

(1) None (2) within 1 year (3) After 1 year (4) **When needed** √

Are the evaluation results used to improve the results?

(1) No (2) To some extent (3) **Yes** √

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.

- Shah Abdul Latif University strictly follows the policy of “Equal Opportunity” regardless religion, race, faith, cast & creed, gender regarding recruiting faculty including admissions, educational programs and employment.
- The University applies standard operating methodology for evaluation, such as Annual Confidential Report (ACR), required research papers, teaching experience and all other conditions as directed by the HEC. Thus
- This process ensures the objectives of the program mission.

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.

- It is strictly observed that the time table is followed by the faculty. However, **Weaknesses & Strengths** have been observed through the student feedback for the “Course Evaluation”. The department needs to improve in various aspects.

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.

- The process for the degrees of BS-4 year has been well designed by the Advanced Studies & Research Board (ASRB) followed by the HEC directions. Details are as under.

Degree	GPA/Class/GRE	Interview	
BS-4 Year	Pre-Admission Test (NTS) style	X	
MS/MPhil/Ph.D	Pre-Admission Test (NTS) style	Yes	

This process must be periodically evaluated to ensure that it is meeting its objectives. (Yes) ✓

The department ensures that the graduates actively participate in laboratory work, punctual in the classes, maintaining attendance over **75%**.

Criterion: 6. Faculty: Faculty members must be current and active in their discipline and have the necessary technical depth and breadth to support the program. There must be enough faculty members to provide continuity and stability, to cover the curriculum adequately and effectively. To meet this criterion the following standards must be satisfied.

Standard: 6: 1. There must be enough full time faculty who are committed to the program to provide adequate coverage of the program areas / courses with continuity and stability. The interest of all faculty members must be sufficient to teach all courses, plan, modify and update courses. The majority must hold a Ph.D. degree in the discipline.

Table: 10. Program areas and number of faculty in each area.			
Program Areas of specialization	Courses in the area.	Number of faculty members in each area	Number of faculty with Ph.D. degree
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Total			

* One visiting professor

Faculty Resume:

Note: Faculty resumes are well documented as per policy/criteria of HEC. Names of the faculty members and field of specialization are as under.

01.	Dr. Mushtaque Ali Jakhrani Post-Doctorante (London, UK) Professor, Area of specialization (Organic Chemistry)	Ph.D. (Pak),
02.	Dr. Khalida Parveen Mahar Professor, Area of specialization (Physical Chemistry)	Ph.D. (Pak),
03.	Dr. Tajnees Pirzada Professor, Area of specialization (Physical Chemistry)	Ph.D. (Pak),
04.	Dr. Shamroz Bano Sahito Professor, Area of specialization (Analytical Chemistry)	Ph.D. (Pak),
05.	Dr. Wahid Bux Jatoi & Post Doctorale (France) Prof. Area of specialization (Organic Chemistry)	Ph.D. (France)
06.	Dr. Gul Afshan Soomro Professor (Inorganic Chemistry)	Ph.D. (Pak),
07.	Dr. Bhajan Lal Bhatia Associate Professor Area of specialization (Inorganic Chemistry)	Ph.D, (Pak)
08.	Dr. Qurat-ul-Ain Shaikh Assistant Professor Area of specialization (Organic Chemistry)	Ph.D. (China)

09.	Dr. Nazar Hussain Kalwar Post-Doctorate, (Turkey) Assistant Professor Area of specialization, Analytical Chemistry	Ph.D. (Pak),
10.	Dr. Parvez Ali Mahesar Assistant Professor Area of specialization, Organic Chemistry	Ph.D, (Pak)
11.	Dr. Nassem-ul-Ghani Qureshi Assistant Professor Area of specialization, Physical Chemistry	Ph.D. (UK),
12.	Dr. Jahanger Patujo Assistant professor Area of specialization, Inorganic Chemistry	Ph.D. (Pak),
13.	Dr. Aneela Tahira Assistant Professor Area of specialization, Organic Chemistry	Ph.D Sweden
14.	Mr. Mansoor Ali Kalhoro Assistant Professor Area of specialization, Physical Chemistry	M.Phil Sindh
15.	Dr. Jamshed Ali Raise Assistant Professor Area of specialization, Analytical Chemistry	Ph.D. Pak
16.	Dr. Muhammad Aslam Korai Assistant Professor (TTS) Area of specialization, Inorganic Chemistry	Ph.D Pak
17.	Ms. Azra Ansari Lecturer Area of specialization (Organic Chemistry)	M.Phil Pak
TEACHING ASSISTANTS		
18.	Ms Asia Ruk TA, Area of specialization (Physical Chemistry)	M.Phil Pak
19.	Mr. Ali Raza Solangi TA, Area of specialization (Analytical Chemistry)	MS Pak
20.	Mr. Ali Ibrahim Shar TA, Area of specialization (Inorganic Chemistry)	M.Phil Pak

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.

- a. Participation in seminars, conferences at National/International levels.
- b. Research proposals for funding and linkage with other Institutions.
- c. Taking classes, involved in research and reading new books in the relevant field.

- d. Publications in HEC recognized journals or journals having impact factors.
- e. Organize workshops, seminars and conferences.
- f. The department arranges lectures from eminent scholars on various topics of the subject for its students and faculty at National level.
- g. Prepare their resume in line with HEC guidelines.

Faculty Development Program:

Standard 6:3. All faculty members should be motivated and have job satisfaction to excel in their profession.

The following criteria are under practice in order to satisfy the faculty members in their profession.

- a. Fair, timely selection, appointment / promotion as per HEC policy.
- b. Providing Tenure Track salary package
- c. Excellent working environment.

1) General Comments:

- a) Teachers have expressed their views that seminars, symposiums and conferences, in general, have motivated to impart the new techniques and methods of teaching.
Suggest programs / factors that could improve your motivation and job satisfaction?
- b) More faculty members may be appointed on the regular basis or contract to cover the workload as per HEC policy.

Teacher Evaluation Form

(To be filled by the student)

Institute of Chemistry

Year: 2022

A: Strongly Agree B: Agree C: Uncertain D: Disagree E: Strongly Disagree

Teacher:		A	B	C	D	E
1	The teacher is prepared for each class	90%	10%	0%	0%	0%
2	The teacher demonstrates knowledge of the subject properly	80%	15%	5%	0%	0%
3	The teacher has completed the whole course	75%	20%	5%	11%	0%
4	The teacher provides additional material apart from the text book	78%	20%	2%	0%	0%
5	The teacher gives citations regarding current situations with reference to Pakistani context.	70%	20%	10	0%	0%
6	The teacher communicates the subject matter effectively	85%	10%	5%	0%	0%
7	The teacher shows respect towards students and encourages class participation	70%	25%	5%	0%	0%
8	The teacher maintains an environment that is conducive to learning	72%	25%	3%	0%	0%
9	The teacher is punctual & regular.	90%	10%	0%	0%	6%
10	The teacher is fair in examination	90%	10%	0%	0%	0%
11	The teacher returns the checked scripts etc. with his suggestions to the students.	85%	10%	5%	0%	0%
12	The teacher was available for consultations after class hours.	80%	15%	5%	0%	0%
Course:						
13	The matter presented in the course has increased the knowledge of the subject.	90%	10%	0%	0%	0%
14	The syllabus clearly states course objectives requirements, procedures and grading criteria	90%	8%	2%	0%	0%
15	The subject integrates theoretical course concepts with real world.	88%	22%	0%	0%	0%
16	The assignments and exams taken by the teacher were according to course and syllabi.	95%	5%	0%	0%	0%

Survey of Graduating Students

(To be filled out by graduating students in last semester / year before the award of degree)

Institute of Chemistry

Year: 2022

A: Very satisfied B: Satisfied C: Uncertain D: Dissatisfied E: Very dissatisfied

S. No.	Question	Percentage/Status				
		A	B	C	D	E
1	The work in the program is too heavy and induces a lot of pressure.	76%	20%	4%	0%	0%
2	The program is effective in enhancing team-working abilities.	73%	27%	0%	0%	0%
3	The program is effective in developing analytical and problem solving skills.	65%	35%	0%	0%	0%
4	The program is effective in developing written communication skills.	64%	27%	9%	0%	0%
5	The program is effective in developing planning abilities.	64%	24%	2%	0%	0%
6	The objectives of the program have been fully achieved	85%	10%	5%	0%	0%
7	Faculty was able to meet the program objectives	85%	15%	0%	0%	0%
8	Environment was conducive for learning	85%	15%	0%	0%	0%
9	Whether the Infrastructure of the department was good.	90%	10%	0%	0%	0%
10	Whether the program was comprised of Co-curricular and extra-curricular activities	75%	25%	0%	0%	0%
11	Whether scholarships/ grants were available to students in case of hardship	50%	35%	15%	0%	0%

Answer question, if applicable.

The internship experience is effective in enhancing.

S. No.	Question	Percentage/Status				
		A	B	C	D	E
A.	Ability to work in teams.	70%	25%	0%	0%	0%
B.	Independent thinking.	72%	28%	0%	0%	0%
C.	Appreciation of ethical Values.	78%	22%	0%	0%	0%
D.	Professional development.	80%	20%	0%	0%	0%
E.	Time management skills.	70%	25%	5%	0%	0%
F.	Judgment.	75%	20%	5%	0%	0%
G.	Discipline.	77%	15%	8%	0%	0%
H.	The link between theory and practice.	70%	27%	3%	0%	0%

Student Course Evaluation Questionnaire

(To be filled by each student at the time of Course Completion)

Institute of Chemistry

Year: 2022

CORE QUESTIONS

Course Content and Organization		Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
1	The course objectives were clear.	65%	20%	15%	0%	0%
2	The Course workload was manageable.	64%	36%	0%	0%	0%
3	The Course was well organized (e.g. timely access to materials, notification of changes, etc.)	75%	25%	0%	0%	0%
Student Contribution		>81%	>81%	80%	60%	40%
4	Approximate level of your own attendance during the whole Course.	70%	15%	15%	0%	0%
5	I participated actively in the Course.	82%	9%	9%	%	0%
6	I think I have made progress in this Course.	73%	9%	9%	0%	9%
Learning Environment and Teaching Methods		Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
7	I think the Course was well structured to achieve the learning outcomes.	64%	27%	9%	0%	0%
8	The learning and teaching methods encouraged participation.	75%	18%	07%	0%	0%
9	The overall environment in the class was academic & friendly.	82%	9%	9%	%	0%
10	Classrooms environment were satisfactory.	62%	38%	%	0%	0%
Learning Resources		Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
11	Learn materials provided by teacher were relevant and useful.	77%	9%	7%	7%	0%
12	Recommended reading Books etc. were relevant and appropriate	74%	17%	6%	2%	0%
13	The provision of learning resources in the library was adequate and appropriate.	75%	9%	9%	7%	0%
14	The provision of learning resources on the Web was adequate and appropriate (if relevant)	50%	35%	10%	5%	0%
Quality of Delivery		Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
15	The Course stimulated my interest and thought on the subject area Teaching techniques of the teacher were interesting and conducive.	55%	35%	10%	0%	0%
16	The pace of the Course was appropriate	60%	36%	4%	0%	0%
17	Ideas and concepts were presented by the teacher were clear.	70%	15%	15%	0%	0%

Assessment		Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
18	The method of assessment were reasonable.	64%	27%	9%	0%	0%
19	Feedback on assessment was timely.	60%	18%	18%	0%	0%
20	Feedback on assessment was helpful.	65%	20%	5%	0%	0%
Additional Core Questions		Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
Teaching Assistant Evaluation						
21	I understood the lectures.	70%	20%	10%	0%	0%
22	The material was well organized and presented.	85%	10%	5%	0%	0%
23	The teacher was responsive to student needs and problems.	90%	10%	0%	0%	0%
24	Had the teacher been regular throughout the course?	85%	15%	0%	0%	0%
Practical		Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
25	The material in the practicals was useful.	65%	35%	0%	0%	0%
26	The demonstrators dealt effectively with my problems.	73%	27%	0%	0%	0%

Criterion: 7. Institutional Facilities. Institutional facilities, including library, clean rooms and offices must be adequate to support the objectives of the program. To satisfy this criterion, the following standards must be met.

Standard 7:1. The Institution must have the infrastructure to support new trends in learning such as E-learning.

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.

Standard 7:3. Class rooms must be adequately equipped and offices must be adequate to enable faculty to carry out their responsibility.

Details of facilities available in the department:

Item	Position	Remarks
Seminar Laboratory & Books/Journals	4000 Books Are Available	Needs More Including Research Journals
Computing Laboratory	01	At Least 20 Computers needed for research Scholars
Laboratory	5 Laboratories	04 well Equipped Needed
Girls Rooms	Only 03 Class Rooms Available	04 Class Rooms Needed to be Equipped with Multimedia Internet Faculty
Girls Common Rooms	Yes	But Need One big with Complete Faculty of washroom/Dressing Room
Boys Common Rooms	Yes	But needs of new room for Boys
Faculty Offices	20 Offices	Sufficient
Internet & Digital Library Faculty	No	01 Room with complete faculty of internet
Computers	yes	The same faculty needed for the research scholars & Postgraduate Students

INSTITUTE OF CHEMISTRY, SEMINAR LABRARY

Sr. No.	Courses	BOOKS
01.	Graduate level courses	2900/-
02.	Post graduate level	1100/-
	Total Books	4000/-

Criterion: 8. Institutional Support. The institution's support and the financial resources for the program must be sufficient to provide an environment in which the program can achieve its objectives and retain its strength.

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 teacher and scholars.

Standard 8:2. There must be an adequate number of high quality graduate students, research assistants and Ph.D. students.

Standard 8-3: Financial resources must be provided to acquire and maintain library holding, laboratories and computing facilities.

- The University provides resources to maintain library& laboratories.

Does the department provide opportunities to the faculty members to attend international / national conferences?

(1) No (2) To some extent (3) **Full**√

PT Members;

Signature



**1. Professor Dr. Mushtaque Ali
Jakhrani**



2. Professor Dr. Wahid Bux Jatoi



PT Members:

PT Members:	Date: 17/02/2022
(1) Prof. Dr. Shafique Ahmed Arain	 Signature
(2) Prof. Dr. Ahmed-u-din Rajper	 Signature