



# Akhuwat-Faisalabad Institute of Research, Science & Technology



Affiliated with  
University of Health Sciences, Lahore

## PROSPECTUS





AKHUWAT

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

*Welcome to*  
**Akhuwat-Faisalabad**  
**Institute of Research, Science**  
**and Technology**



**The Centre of Excellence in Biotechnology**  
[www.akhuwatfirst.edu.pk](http://www.akhuwatfirst.edu.pk)

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**Empowering the  
Youth for a  
Bright Future!**

**As a part of this society, Akhuwat-FIRST  
has committed to provide quality research  
based education to the Youth of this Nation**

AKHUWAT

## AKHUWAT-FIRST MISSION STATEMENT

***“To provide quality education to the youth of our nation in a stimulating and conducive learning environment by equipping them with the intellectual and technological tools necessary to meet the challenges of the future”.***

We foresee that this institute will turn into a technical university dedicated to science and technology, exploring new frontiers in science and emerging technologies, creating new knowledge and actively participating in the industrial and agricultural development of the country through targeted research in the field of Biotechnology. It is an institute with a purpose and vision of serving people with a practical and pragmatic approach while training its students to become dedicated to the discipline of science for a life time.

It hardly needs pointing out that teaching of science especially Biotechnology is essential for the sustainable development of the country. This is in fact the science of the future and experts in this field are in highest demand, not only in the country but around the world.



## Akhuwat Board of Directors



**Sitting (Left to Right):**

Dr. Kamran Shams, M. Saleem Ahmed Ranjha, Dr. Muhammad Amjad Saqib,  
Mr. Humayoun Ihsan, Mr. Khawar Rafique Sheikh, Dr Izhar -ul - Haq Hashmi

**Standing (Left to Right):**

Mr. Fazal Yazdani Khan, Dr. Abdul Razzaq (Late), Mian Anwar Sadiq,  
Mr. Zahid Khokhar



## Chairman's Message

It gives me immense pleasure to welcome you to AKHUWAT-FIRST. When Akhuwat-FIRST was inaugurated in September, 2015, nobody could imagine that a small seed that was planted, would in a short span of time, grow into a shaded plant. I knew at that time, this project would Inshallah become one of the best institutions for talented students in the region with our commitment and dedication. It was more than just a dream for me and Akhuwat's team. The team of Akhuwat-FIRST has worked day and night to materialize this dream into a beautiful reality.

I am a firm believer that hard work always pays off whether you are a student, professional or an entrepreneur. Education demands both attention and hard work, with care. Our purpose is to raise the standard of education in the country and become the benchmark for quality education. We strictly believe that quality education is the right of every child of Pakistan. We offered numerous full time scholarship positions last year and with the support of our kind hearted Donors and supporters will continue through the coming years.

Our modern teaching methodologies and career oriented training, grooms students into

better individuals. They are given full confidence to take up the real world challenges of today and tomorrow with a structured approach. We are also offering part time job opportunities for students and have initiated social projects in Information Technology (IT) and Matriculation preparation.

Keeping in mind the basic needs of research in the emerging field of Biotechnology and to fill this gap, Faisalabad Institute of Research Science and Technology had started its BS (Hons.) program in Biotechnology in affiliation with University of Health Sciences, Lahore. In addition to the BS program, the Institute is also planning to start M. Phil program in Biotechnology along with BBA Biotechnology.

Akhuwat-FIRST has achieved multi dimensional milestones within its brief journey but still there is a long way to go. The vision is to keep striving for excellence and continuously moving forward to make this Institute a Centre of Excellence in Biotechnology.

**Dr. Amjad Saqib (SI)**  
Chairman/Founder  
Akhuwat



**Dr. Ehsan-ul-Haq**

MBBS, MRCP, DCH, FRCP (EDIN.)

*We acknowledge the contribution of Dr. Ehsan-ul-Haq and his immense support, along with his friends and relatives, for the establishment of Akhuwat-FIRST. He is a guiding light for Akhuwat-FIRST.*



## Chief Strategy Officer's Message

Dear friends , students and supporters, Assalam o Alaikum. By the Grace of Almighty Allah the foundational infrastructure of our Institute has been completed. It is my pleasure to express that the facilities developed over the last one year are commendable and praise worthy. Akhuwat-FIRST symbolizes the continuous hardwork, dedication and commitment of the Team of Akhuwat. We are also very grateful to Dr. Ehsan ul Haq for his gracious support and guidance. We appreciate the immense services of Sheikh Muhammad Akram, Dr. Naureen Aziz Qureshi & Pervaiz Khalid Sheikh alongwith all the friends and supporters of Akhuwat.

To keep up with the demands of progressive development within our country, Akhuwat-FIRST team is working with an accelerated pace to initiate other undergraduate and postgraduate degrees in applied disciplines of Biological Sciences. All the courses at Akhuwat FIRST give a comprehensive background of the relevance of the various subjects of Biotechnology. Aspiring candidates are exposed to the realities of their profession and nurtured by the highly reputed faculty to adjust within the scientific framework.

Biotechnology is becoming a major source to solve the problems associated with food shortage, health, environmental pollution and

natural resource depletion. Although, a lot of universities in Pakistan are focusing on research in Biotechnology and molecular biology, yet there is shortage of trained manpower in this area. Students at Akhuwat-FIRST are taught to develop independent projects and practically execute their research in different fields of Biotechnology encompassing Plant, Industrial, Environmental, Pharmaceutical, Human and Medical sciences.

Akhuwat-FIRST has a foreign and locally qualified PhD faculty, professional management and an intense passion to establish a Centre of Excellence in Biotechnology. If you are hardworking, intellectually curious, and eager to improve your skills, I warmly welcome you to Akhuwat-FIRST and assure you that you would have made the right decision.

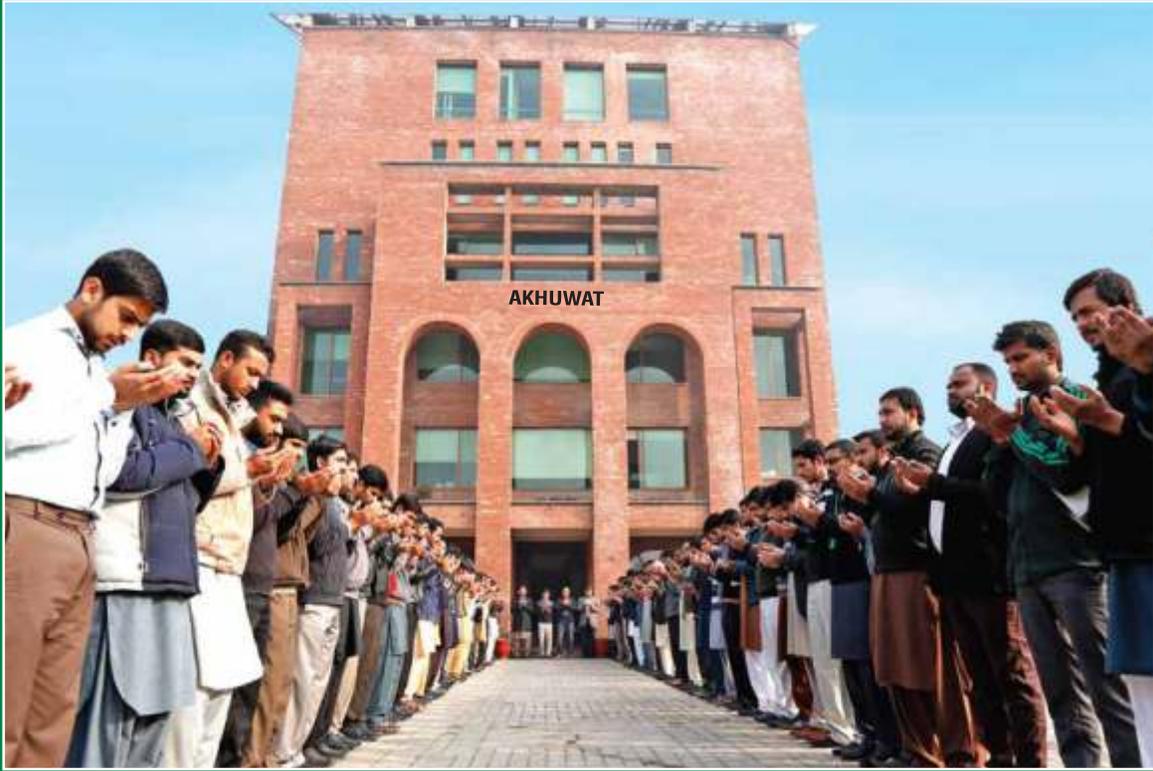
***“Nothing can withstand the prayers of a determined and resolute mind \_\_ Barriers fall, everything Succumbs\_\_if positively inspired, the very gates of Heaven open”***

**Syed Hussain Haider**

Chief Strategy Officer

Akhuwat Education Services

Director, Akhuwat Institute of Social Enterprise & Management

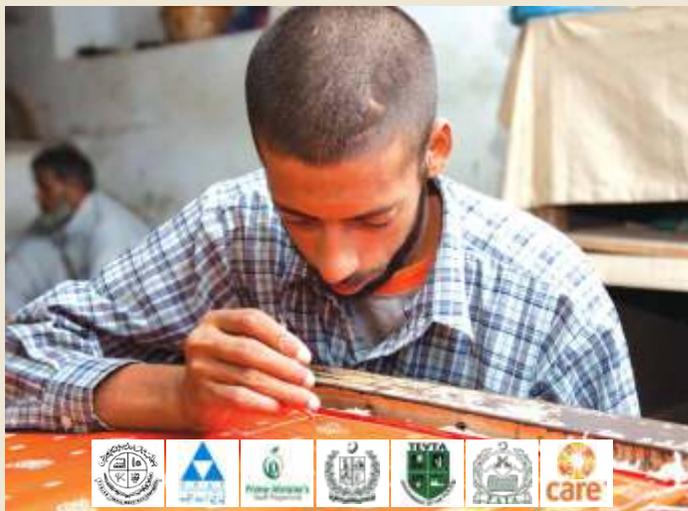


# AKHUWAT



## Akhuwat Islamic Microfinance (AIM)

Akhuwat derives its name from 'Mwakhaat' or brotherhood, the earliest example of which was seen in the fraternity formed by the Ansars (citizens of Medina) and the Muhajireen (or Meccans) who had migrated to Medina to escape religious persecution. The concept materialized in 2001 with the first interest free loan given to a widow who returned it after 6 months with a message to again give it to someone. Akhuwat has now disbursed more than 32 billion rupees to over 1,600,000 families through more than 600 branches in more than 300 cities of Pakistan.



### Objectives

- To provide interest free microfinance services to poor families enabling them to become self-reliant
- To promote interest free loans (Qarz-e-Hasan) as a viable model and broad-based solution for poverty alleviation
- To provide social guidance, capacity building and entrepreneurial training
- To provide quality education to needy and talented students who exhibit a passion to contribute positively towards society
- To transform Akhuwat's beneficiaries into agents of social change
- To institutionalize the spirit of brotherhood, compassion and volunteerism
- To make Akhuwat a sustainable, growth oriented, and replicable organization
- To support the most marginalized segment by investments in social development

### Replications of the Akhuwat Model

The Akhuwat Model has been replicated by a number of public and private sector organizations. The Government of Punjab initiated its flagship program titled the "Chief Minister Self Employment Scheme" followed by "Prime Minister Interest Free Loans Scheme" which aimed to target the most underprivileged segment of society. Similarly, the Government of Gilgit Baltistan also initiated the Chief Minister Employment Scheme in GB, along with the Government of Khyber Pakhtunkhwa, which has adopted the same model for the Federally Administered Tribal Areas (FATA). All these initiatives follow "interest free microfinance" model conceived and developed by Akhuwat. Technical Education and Vocational Training Authority (TEVTA) is yet another addition to provide financial access to its graduates through Akhuwat.

### Akhuwat-Ishtirak Project

Ishtirak, a business project initiated by professionals involved in development and market research consultancy focused in Middle East and African markets, has collaborated with Akhuwat on the

Akhuwat-Ishtirak Islamic Finance Project. Ishtirak provides funding to disburse and administer loans while Akhuwat provides operational support.

### Musharaka Project

Musharaka is a mode of Islamic financing in which capital is provided by two or more parties for project development. Akhuwat, in collaboration with Oxford University and Lahore University of Management Sciences (LUMS), is developing a tri-partite relationship to form the Musharaka Project.



Chief Minister Punjab Mian Mohammad Shahbaz Sharif distributing cheques to beneficiaries at the Grand Disbursement at Badshahi Mosque in January 2016

**15**  
Years

**32 billion**  
rupees +  
disbursed

**1,600,000**  
families +  
reached

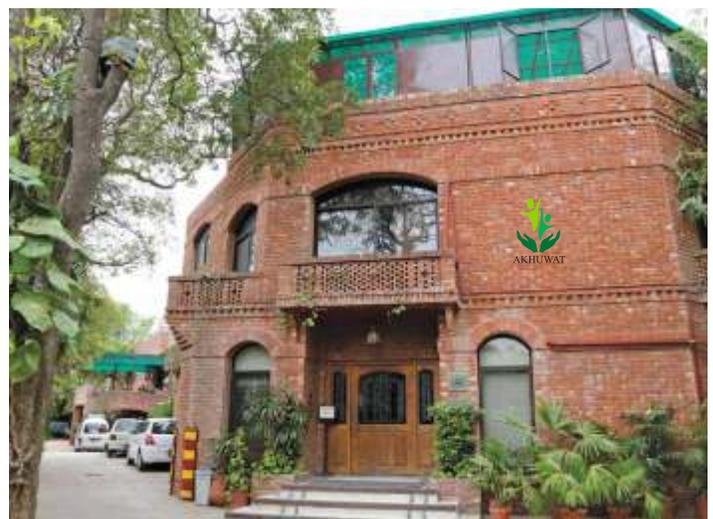
**600**  
branches

**300**  
cities

Alhamdulillah!

### Akhuwat Institute of Social Enterprise & Management (AISEM)

The Akhuwat Institute of Social Enterprise & Management (AISEM) specializes in the provision of customized workshops which are based upon comprehensive Training Need Analysis bridged with the needs and requirements of the concerned organization. AISEM has a well experienced and qualified training panel which includes experts in the areas of finance, audit social development, leadership, communication, monitoring and evaluation, procurement, community development, volunteerism, social enterprise development, supply chain management, microfinance, community impact assessment etc.



## Akhuwat College

Akhuwat has established a College in Lahore where students belonging to 44 districts of Pakistan, from Sindh, Punjab, Khyber Pakhtunkhwa, Balochistan, Gilgit Baltistan, Azad Jammu Kashmir and FATA are enrolled. Akhuwat College offer admission to students from low-income backgrounds, paying special attention to the poorest of the poor (zakat mustahiq) and the marginalized stratum of society without any discrimination on the basis of caste, colour and creed. The families may be poor in wealth but are rich in character and integrity.



## Akhuwat-Faisalabad Institute of Research Science and Technology (FIRST)

Akhuwat-FIRST is a state-of-the-art university complex in the making. The complex is complete with facilities for sports, encompassing computer and research labs fitted with the latest information technology equipment. It offers four-year undergraduate degrees in the sciences, with a special focus on Biotechnology. To facilitate future scientists in their respective fields, Akhuwat-FIRST wants to create a niche by being a top-notch research university in Pakistan.



## Akhuwat Health Services (AHS)

Akhuwat Health Services caters to the health needs of the poorest of the poor and the Akhuwat beneficiaries. It has developed a network of low priced medical services by collaborating with different hospitals, clinics, diagnostic centers and pharmacies and has treated 285,000 needy patients free-of-cost.



### **Khawaja-Sara Support Program**

This is a joint project of Akhuwat and Fountain House. The program has several stages, starting with social engagement and provision of a small income supplement to the most vulnerable. Through this program, Akhuwat and Fountain House hope to reintegrate the khawaja-Sara (transgenders) back into society as equal citizens.

### **Akhuwat "Dreams" Project**

Beginning in 2008, Akhuwat Dreams Project was initiated to fulfil the "dreams" of children suffering from terminal illnesses. Dedicated play rooms in hospitals offer bright, positive and playful environments for sick children, giving them a break from the otherwise drab and serious hospital environments.



A Khawajasira engrossed in stitching clothes at the Akhuwat Clothes Bank

### **Akhuwat Leadership and Fellowship Program**

This unique program trains through a rigorous and community focused 4-5 weeks module. It provides students with community exposure that aims to instill in them a sense of compassion and empathy.

### **Akhuwat Schools**

Akhuwat has adopted 150 nonfunctional govt. schools through a public private partnership under the Public Schools Support Program. These schools are located in Faisalabad and Jhang Districts and have been converted into properly functional educational institutions. Akhuwat plans to further operate 300 - 400 schools in the underdeveloped areas of Pakistan.

### **Akhuwat Conferences and Workshops**

Conferences on topics related to Islamic Microfinance have been held in partnership with University of Central Punjab in 2011 and 2015. Akhuwat has organized five International conferences under the banner of Global Microfinance Islamic Forum. Hundreds of workshops in partnership with numerous prestigious universities as well as several Chambers of Commerce and industry across Pakistan have also been executed.

### **Akhuwat Clothes Bank**

Akhuwat Clothes Bank collects clothes from affluent families. After repairing, washing/dry cleaning and



(Students studying the Akhuwat Clothes Bank)

packing them, the clothes are then given as gifts to needy persons. This project recruits transgender individuals promoting dignified employment for this discriminated segment of society.

### Dewar-e-Akhuwat

As an extension of the Akhuwat Clothes Bank, a new initiative titled Dewar-e-Akhuwat is being executed. Furthering the philosophy of Akhuwat, the idea is to facilitate the supply of clothes from the “haves” to the “have-nots”. Outside many of the 500 branches of Akhuwat, a wall has been reserved on which abandoned, repaired and cleaned clothes are hung for poverty-stricken individuals to choose from. This plan will also be implemented outside all Akhuwat schools.

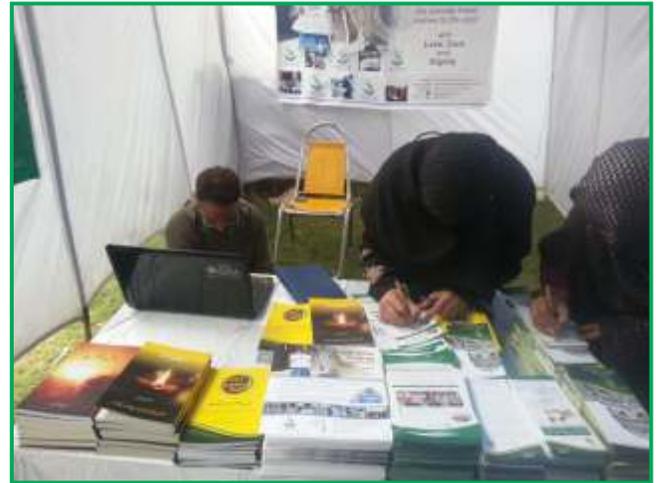


### Akhuwat Book Bank

To develop a reading culture and ensure provision of books to remote regions, Akhuwat is developing Akhuwat Book Bank and will establish book corners in Under privileged communities.

### Akhuwat Volunteer Services

The Akhuwat Volunteer Services Program promotes volunteerism amongst students and professionals. This program provides exposure in the areas of community service, disaster management, capacity building and event management to the volunteers. A network has been created whereby the volunteers can independently undertake projects across the country.



### Akhuwat Food Bank

The Akhuwat Food Bank is an initiative targeted to facilitate the transfer of meals from restaurants and catering services to needy families. It aims at curtailing the enormous wastage of food from marriage halls and food outlets by collecting excess edibles at the end of the day and distribute it amongst impoverished communities, ensuring the sanctity of human dignity.

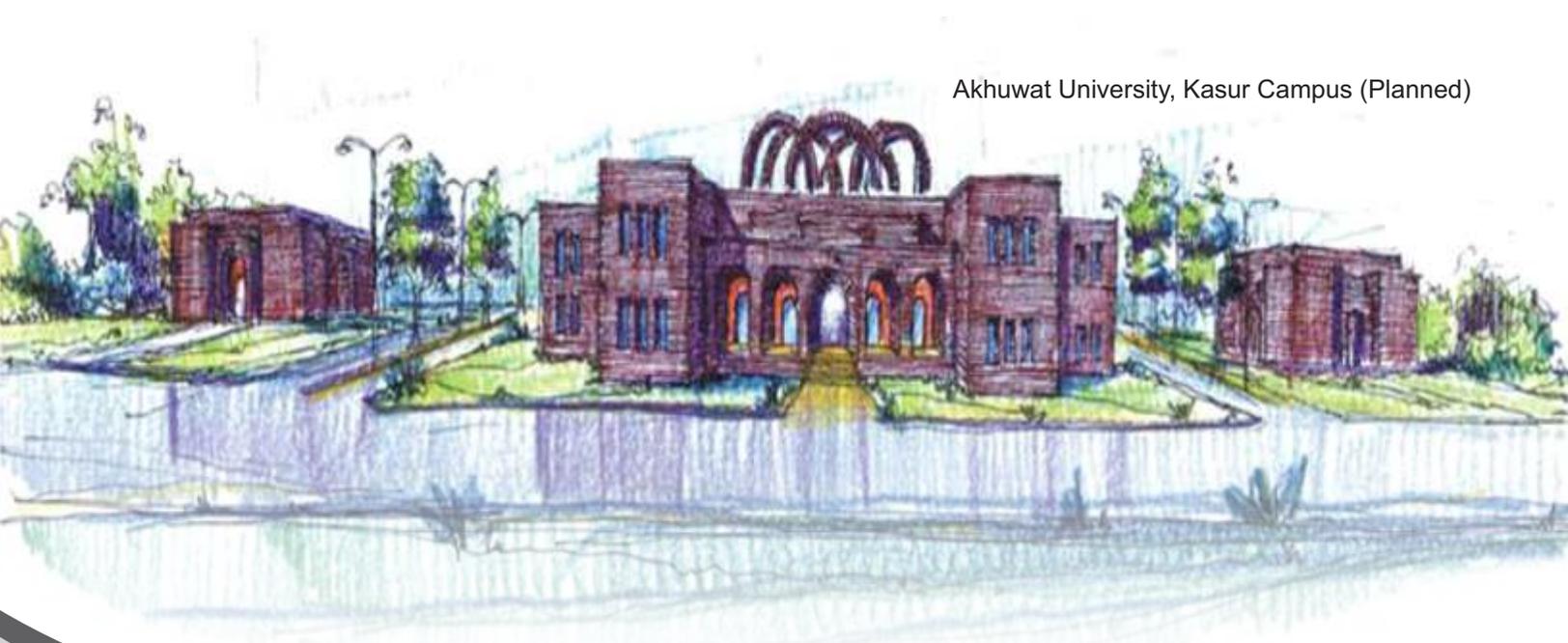




Left: Beneficiaries waiting to receive their cheques; (Right): Dr. Amjad Saqib addressing the audience at a loan distribution ceremony at Masjid Wazir Khan held to commemorate the inauguration of Akhuwat 500<sup>th</sup> branch at Delhi Gate, Lahore

## The Way Forward

Akhuwat through its different programs is providing holistic and integrated solutions to the destitute underprivileged segments of society in Pakistan. It is inculcating the spirit and philosophy of Akhuwat in the hearts and mind of millions of peoples around the world. Akhuwat inspires to expand its outreach whereby it can provide financial, health and educational facilities to over 2.5 million families by the year 2020, through its own organizational initiatives and by promoting its replication model. It also intends to take its foot print across the borders of Pakistan and help support impoverished communities in other regions.



Akhuwat University, Kasur Campus (Planned)

## Akhuwat through the years...

<b>1.6</b>	Million Families
<b>32</b>	Billion Rupees Given as Interest Free Loans
<b>600</b>	Branches
<b>4000+</b>	Employees
<b>580,000</b>	Clothes Distributed
Dewar-e-Akhuwat across Pakistan: <b>100</b>	
<b>285,000+</b>	Patients treated free of cost
<b>350</b>	Events/Seminars/Conferences conducted
<b>24,000+</b>	Volunteers
<b>23,000+</b>	students enrolled in AES institutions
<b>1580</b>	Fellows/Interns trained
<b>27,000+</b>	Students trained
<b>6</b>	libraries established
<b>125</b>	book corners under development
Schools operated: <b>150</b> with plans to open another 300	
<b>351</b>	Khwajasiras registered & <b>900</b> khwajisiras interviewed
Dream Rooms established: <b>4</b>	



AKHUWAT

## Donate to Akhuwat

### 1. Bank Name: Burj Bank Ltd.

Account Title: **AKHUWAT** Branch Code: **7401** Account No. **7401105860000442**

IBAN # **PK50BURJ7401105860000442** Swift code: **BURJPKKAXX**

### 2. Bank Name: Meezan Bank Ltd. Account Title: **AKHUWAT** Branch Code: **0222**

Account No. **0100097547** IBAN # **PK79MEZN0002220100097547** Swift code: **MEZNPKKAXX**

### 3. Bank Name: Bank Islami

#### Akhuwat Zakat Account:

Account Title: **Akhuwat** Account Number: **201100116060201**

#### Akhuwat Donation Account:

Account Title: **Akhuwat Donation** Account Number: **201100116060206**

**Akhuwat Head Office, Lahore, Pakistan.**

**19- Civic Centre, Sector A2, Township, Lahore**

[www.akhuwat.org.pk](http://www.akhuwat.org.pk)

[www.aisem.com.pk](http://www.aisem.com.pk)



Formal inauguration ceremony of Akhuwat-FIRST.  
Chairman HEC Punjab Dr. Nizam-Ud-Din, Akhuwat's Board of Directors, Vice Chancellors of GCWUF, Vice Chancellor of University of Sargodha, Director General Ayub Agricultural Research Institute Faisalabad and Rector University of Faisalabad were also present at this event.

# Akhuwat-FIRST

Akhuwat-Faisalabad Institute of Research, Science and Technology (FIRST), has been set up in Faisalabad at Chak 250 RB, about thirty minutes' drive from the city centre and five minutes' drive from Faisalabad international Airport. The primary aim of the institute since the past 10 years has been to impart quality education in science and technology and promotion of applied and basic research. Presently the institute has covered an area of about forty two thousand square feet which adequately meet the requirements of undergraduate courses in B.Sc. (Hons) in Biotechnology. We are extending our educational, laboratory and we are ambitious to expand out programs by including more disciplines. A new custom made hostel is under construction to accommodate 300 students. We have about two hundred and twenty kanals of land on which to construct the integrated campus, including female student hostels and staff residences. Facilities for student play grounds and athletics are also available. Currently, we have arranged hostel facilities for female students in Faisalabad City. We have a forward looking vision to develop this institute into a world class facility for research and education.

## **Biotechnology; Scope in Present and Future:**

Biotechnology is essential for the sustainable development of the country. This is in fact the science of the future and the experts in this discipline are in highest demand all over the world and in Pakistan as well.

Biotechnology is currently being employed in many areas including agriculture, health and medicine, development of genetically modified organism, bio-nanotechnology, bio-remediation, food and water processing and for energy production. DNA fingerprinting is becoming a common practice in forensics. Production of insulin and other medicines is accomplished through cloning of vectors that carry the chosen gene.

In agriculture, genetic engineering is being used to produce plants that are resistant to insects, weeds and many other plant diseases. The future of biotechnology is so promising that experts in this field are surprising the world with new improved quality products. There are artists and architects collaborating with biochemists and geneticists to theorize about the possibility of creating living houses for humans. These houses would be made of living plants genetically engineered to be perfect habitats living symbiotically with humans, including cool or warm climate controls, plumbing (fresh water and waste digestion), food provision, and light energy capture, storage, and production. Different textures, colours, and functions are unlimited in theory.

Researchers have recently isolated the genes related to schizophrenia and are conducting research leading to the investigation of a cure or treatment. The last few decades of 20th century have witnessed the development of a number of novel and new techniques in biological sciences that have not only taken research to a greater level, but also hold the great promise of a better life for the upcoming future. Therefore, it is very crucial for Pakistan to play and contribute to new developments in this field. It is matter of enough pride for us that we are thriving to provide a dedicated and research based degree to our talented students.

### Scope of Biotechnology graduates:

The graduates after successful completion of their degree will be able to find lucrative opportunities in many fields including pharmaceutical industry, chemical and bio-process technology industry, research fields, medical laboratories, teaching and agricultures etc. There are also attractive career opportunities available in petrochemical industry where the biotechnology graduates will play an important role to develop new biochemical compounds, thrermostable enzymes production through extremophiles and in treatment of oil spills.



Biotechnology also has a strong role in environmental protection practices as this field helps to identify and improve the fungi and bacterial culture to use them in environmental cleansing. Health technology and medical research is also one of those fields in which biotechnology is high in demand as biotechnology is required to develop various medicines to detect and treat various diseases.



## Scheme of Studies for B.Sc. (Hons) in Biotechnology

### First Professional

#### 1. Paper 1 Introductory Biotechnology

- Introductory Biotechnology-1
- Introductory Biotechnology-2

#### 2. Paper 2 Chemistry-1

- Physical Chemistry
- Organic chemistry-1

#### 3. Paper 3 Islamic Studies/ Ethics Pak Studies

- Islamic Studies/Ethics
- Pak Studies

#### 4. Paper 4 Biological Sciences

- Plant Sciences
- Animal Sciences

#### 5. Paper 5 Communication Skills

- Basics in Computer Sciences
- Communication Skills

### Second Professional

#### 1. Paper 1 Biological Chemistry 1

- Biological Chemistry (A)
- Biological Chemistry (B)

#### 2. Paper 2 Chemistry II

- Organic Chemistry 2
- Enzymology

#### 3. Paper 3 Cell Biology & Genetics

- Cell Biology
- Genetics

#### 4. Paper 4 Microbiology & Plant Physiology

- Microbiology
- Plant Physiology

#### 5. Paper 5 Biomathematics & Biostatistics

- Bio-Mathematics
- Bio-Statistics

### Third Professional

#### 1. Paper 1 Biotechnology Basics

- Elements of Biotechnology
- Techniques of Biotechnology

#### 2. Paper 2 Molecular Biology

- Molecular Biology
- Recombinant DNA Technology

#### 3. Paper 3 Genetic Engineering

- Microbial Genetics

- Principles of Biochemical Engineering

#### **4. Paper 4 Biotechnology of Plants & Animals**

- Plants Biotechnology
- Animals Biotechnology

#### **5. Paper 5 Biological Chemistry**

- Metabolism-1
- Metabolism-2

### **Final Professional**

#### **1. Paper 1 Bioinformatics and Economics**

- Bioinformatics
- Economics & Business Applications

#### **2. Paper 2 Industrial and Environmental Biotechnology**

- Industrial Biotechnology
- Environmental Biotechnology

#### **3. Paper 3 Food Biotechnology and Immunology**

- Food Biotechnology
- Immunology

#### **4. Paper 4 Research Methods in Biotechnology**

- Skills & Research Methodology for Biotechnology
- Medical Technology

**To do research in labs and submit research reports. Or select two of the following optional courses.**

#### **5. Paper 5 Two Optional Courses (to be decided as per number of students)**

- Protein Structure, Function and Engineering
- Advanced Molecular Biology
- Advanced Immunology
- Advanced Microbiology
- Industrial Enzymology
- Renewable Resource Technology
- Agriculture Biotechnology
- Waste Management Biotechnology
- Pharmaceutical Biotechnology
- Proteomics
- Mixed Microbial Processes
- Aquaculture Biotechnology
- Marine Biotechnology
- Biodiversity and Genetics Conservation
- Cell and Tissue Culture
- Transgenic Plants
- Transgenic Animals
- Stem Cells and Therapeutic Cloning
- Gene Therapy
- Genomics
- Safety Considerations for Biotechnology Processes



## University of Health Sciences, Lahore- an Overview

University of Health Sciences (UHS), Lahore is a Medical University Located in Lahore. It is an internationally recognized student centered Research University with a mission of improving Health Care delivery to populace. The university regulates and coordinates the activities of medical education, training and research institutions throughout the province of Punjab. As a provincial authority this prestigious institute also conducts Medical College Admission Test (MCAT) every year. UHS has earned the 2<sup>nd</sup> position in National University Ranking for 2015 in the field of medical and health sciences, and 8<sup>th</sup> position in all universities of Pakistan by Higher Education Commission of Pakistan. The university offers undergraduate and postgraduate level courses in medicine, pharmacy, dentistry, allied health sciences, bio-medical engineering, biotechnology and nursing.



UHS was awarded “Best Educational Institute in Healthcare” by World

Education Congress Asia. Its ethos from its beginning has been to produce highly relevant research that solves real health problems and improve people's quality of life.

At present extensive on-campus research is going on in 183 areas including Asthma, Diabetes, Tuberculosis, Typhoid, Infertility, Environmental Pollution, various types of Cancer, Genetic Disorders, Consanguinity, DNA Analysis, Developmental Abnormalities, Metabolic Syndromes, Hepatitis B & C, Liver and Renal Disorders. A high-tech Resource Lab and an Experimental Research Lab (Animal House) have been established for research purposes.

The UHS Library acts as resource center cum library. The latest edition of medical books are available to cater the needs of students and faculty with access to HEC Digital Library with more than 23,000 online journals with full text/abstracts and 40,000 online books. A reference service is provided to UHS students specially using MEDLINE and MEDLAR databases.

Within a short time of its formation, the University has developed collaboration with several International Institutes. Prominent among them are Duke University, University of Texas Houston, University of Pittsburgh, Center of Disease Control (CDC) Atlanta, University of Liverpool, University of Glasgow, University of Nottingham, University of Reim France and University of Muenster Germany.

## Town and City Life of Faisalabad

Faisalabad (Lyallpur until 1979), historically one of the first planned cities within British India, has long since developed into the third most populated metropolis after Karachi and Lahore in the Punjab province of Pakistan. The total area of Faisalabad District is 58.56 square kilometer (22.61 sq mi) while the area controlled by the Faisalabad Development Authority (FDA) is 1,280 km<sup>2</sup> (490 sq mi). Faisalabad has grown to become a major industrial and distribution centre because of its central location in the region and connecting roads, rails, and air transportation. It has been referred to as the "Manchester of Pakistan" because it contributes over 20% towards Pakistan's annual GDP. Faisalabad's average annual GDP is \$20.55 billion (USD), of which 21% comes from agriculture. The surrounding countryside, irrigated by the lower Chenab River, produces cotton, wheat, sugarcane, vegetables and fruits. The city is an industrial centre with major railway repair yards, engineering works, and mills that process sugar, flour, and oil seed. Faisalabad is a major producer of superphosphates, cotton and silk textiles, hosiery, dyes, industrial chemicals, beverages, clothing, pulp and paper, printing, agricultural equipment, and ghee (clarified butter). The Faisalabad Chamber of Commerce and Industry monitors industrial activity in the city and reports their findings to the Federation of Pakistan Chamber of Commerce and Industry and provincial government. The city also has a major dry port and an international airport. Faisalabad is home to the Akhuwat-Faisalabad Institute of Research Science and Technology, University of Agriculture, Government College University, Ayub Agricultural Research Institute, Divisional Public School Faisalabad and National Textile University. The city has its own cricket team, Faisalabad Wolves, which is based at the Iqbal Stadium. There are several other sports teams that compete internationally, including hockey and snooker as well as other sporting events.



## Why choose Akhuwat-FIRST?

- Academic Heritage
- Highly Qualified Faculty
- Highest Placement Support
- High-caliber Peer Group
- International Linkages
- International Teaching Methods
- Excellent Learning Environment
- Scholarships

### Academic Heritage

Education in 21<sup>st</sup> century demands a balance between continuity and change. Biotechnology is essential for the sustainable development of the country. This is in fact the science of the future and the experts in this discipline are in highest demand, in Pakistan as well as abroad. Biotechnology is currently being used in many areas including agriculture, bioremediation, food processing and energy production. DNA fingerprinting is becoming a common practice in forensics. Production of insulin and other medicines is accomplished through cloning of vectors that carry the chosen gene. In agriculture, genetic engineering is being used to produce plants that are resistant to insects, weeds and plant diseases. We are the first Institute in Pakistan who are providing a focused and dedicated research program in biotechnology and our mission is to develop the top biotechnology professionals to meet the needs of our country. We are working on providing state of the art lab equipment for the students to conduct their experiments and a top quality library with quality books imported from abroad to help them equip themselves with up to date knowledge of their field. As stated above, there are countless opportunities available in this field and Akhuwat is confident that our graduates will play an important role to develop and improve the different industries of Pakistan which will ultimately help in boosting the Pakistan's economy.

### Highly Qualified Faculty

The finest resource that Akhuwat-FIRST brings into the education space because of its highly qualified and professionally experienced faculty members. These faculty members have brought knowledge of education processes, methodologies and experience in research. The faculty members work ceaselessly to inculcate complete positive transformation across processes, departments and the entire student body.

## Highest Placement Support

Akhuwat-FIRST follows a process of industry integrated biotechnology education, where placement is the concluding component of an endways professional education system. Throughout the education process, the students are educated on industry-led syllabi which enable them to be market-oriented.



## High-caliber Peer Group

Akhuwat-FIRST is founded with a vision to create an environment where students get a chance to polish their intellect and groom well in order to meet all the challenges. The student body is chosen carefully so that the students intake is appropriate in all respects.



## International Linkages

The driving vision at Akhuwat-FIRST is to evolve into a center of international education excellence. To achieve this vision the university is continuously developing international partnerships with reputed universities and institutes of higher learning across the globe. Akhuwat-FIRST's global strategy aims at developing strong and effective partnerships which provide faculty, students and researchers with opportunities for international collaboration and active involvement in multi-disciplinary projects at a global level.



## International Teaching Methods

Akhuwat-FIRST uses a combination of international teaching methods to ensure all-round excellence.

- ### Flexible Credit System
- ### Industry Tie-ups, Guided Syllabus and Integration
- # Classroom-based Learning, Project-based Learning and Research-based Learning
- ### Outcome-based Learning
- ### Guest lectures by highly knowledgeable individuals from Pakistan and abroad.



## Excellent Learning Environment

Akhuwat-FIRST allows the students to come across all modern learning techniques. Akhuwat-FIRST develops and nurtures students, by inculcating them with what the university calls Thinking Quotient. Thinking Quotient, is going to be the competitive advantage in the 21<sup>st</sup> century and this is only attainable through quality education imparted by modern learning techniques. “Not only our degree provides a wide range of modules, but it also gives an opportunity to the students to get as much practical experience in the industry as possible”.



## Scholarships

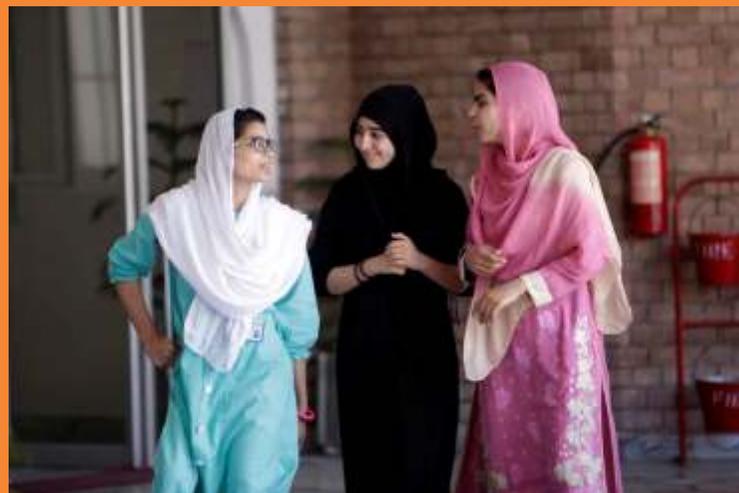
Akhuwat-FIRST believes in encouraging bright and deserving students. For this purpose, Institute offers different types of merit and need based scholarships, Akhuwat-FIRST cash awards, kinship fee concession, special scholarship for disabled and deserving students, financial assistance for faculty development program and financial assistance for teaching/technical assistants. So, through our various scholarship programs, 80% of Akhuwat-FIRST students are availing full scholarships not only for tuition but also for boarding, lodging, clothes, books etc.





## Campus Life

The Akhuwat Faisalabad Institute of Research Science and Technology is located 30 Km far from the city centre in 25 acres of land. Beside beautiful building, botanical garden, green houses, glass houses and other landscapes are the beauty of campus. Weekly ten hours are dedicated for extracurricular and co-curricular activities of students. The institutes have also created many part time job opportunities for students. Recreational opportunities abound within the main city area. The main recreational points of Faisalabad are within a few minutes drive of the campus.



## Academic Activities



## Views of Akhuwat-FIRST graduates

Some of our graduates share their views and stories on life at Akhuwat FIRST

### Mr. Adil Usman

My name is Adil Usman and I belong to Faisalabad. After the completion of intermediate in pre-medical, I was very passionate and curious about science and research. I had the option of admission in Pharm D, Physiotherapy, DVM and Food Technology programs at prestigious universities of Pakistan but I selected Biotechnology for graduation and obtained admission in FIRST (now Akhuwat-FIRST). This institute provided me with a multi-dimensional platform where I could fully express all my talents and abilities. Akhuwat-FIRST has collaborated with top national and international research groups and due to these collaborations, I was given an internship opportunity at NIBGE, Faisalabad, which is the finest facility in the country for research. All those things transformed me into an all-rounder. I was offered a job at National Textile University, Faisalabad, even before the completion of my degree B.Sc.(Hons.). I also secured admission in MS Biomolecular Engineering program at TU Dresden, Germany on scholarship but I couldn't avail that scholarship because my employer (NTU) didn't issue NOC on time. The next year, I got an admission offer from National University of Sciences & Technology (NUST), Islamabad, which is currently one of the top-ranking universities in Pakistan. At NUST, I did my MS in Nanoscience & Engineering. I am currently in the process of applying for a PhD position abroad and receiving a positive response from the supervisors. So my success story is based on FIRST, which was really a life changing experience for me.



### Umer Anayat

I belong to a middle class family and my father does business of electrical spare parts. When I was offered admission in Faisalabad Institute of Research Science and Technology, I was quite apprehensive about my future. However, with the passage of time I realized that the curriculum of this institute is so strong that I never faced any problem in the interviews. After the completion of BSc. (Hons) Biotechnology, I was awarded a scholarship for MS Biotechnology from Norwegian University of Science and Technology, Norway. I have recently completed my MS exams and I am currently working as Research Associate in Institute of Surgical Research, Molecular Cardiology Department of RIKS hospital, Oslo, Norway. I am quite hopeful that my department will offer me a fully funded scholarship with a reasonable stipend for PhD to continue my research on epigenetics. I think biotechnology is a very rewarding profession and I am happy about my choice. Whatever I am today is because of Akhuwat-FIRST.



## Shahid Riaz

I belong to Bhowana district of Punjab. I was very nervous when I joined the Faisalabad Institute of Research Science and Technology (FIRST) for BSc. (Hons) Biotechnology. It was the first time I was going out of town for study but thankfully, I felt that I was not away from home. The students and teachers work in an open and respectable environment. Whatever I am today is because of FIRST. I got a job as a lecturer in Cadet College before the completion of my undergraduate degree. I never dreamed that I can go out of the country for PhD on a scholarship. It is due to the training and education of this institute that after graduation, when I applied for few scholarship positions in China, I was selected for a PhD scholarship position in Northwestern Polytechnical University. I am proud to be the part of this institute. My message to my juniors is to work hard and be confident that you have selected the right profession and right institute.



## Ahsan Javed

Assalam o alaikum. Biology is my favorite subject since school as I was very enthusiastic about medical sciences and research. FIRST gave me a platform to enter in a multi-disciplinary area of biotechnology where my knowledge and skills were polished and I received practical experience of various techniques. Along with studies, I will never forget the motivation of my teachers especially Prof. Dr. Younas Gilani who always encouraged me by saying that “Shining stars casts their shadows before”. With an excellent and committed staff, this institute has helped me in gaining in-depth knowledge of science and humanities. My teachers have also groomed me to organize different events and co-curricular activities. Right after the completion of my degree, I applied to a number of high profile universities in Pakistan and abroad and by the grace of Allah almighty, I secured admission in LUMS, NUST, Bangor University North Wales, UK and TU Dresden, Germany. Finally, I opted to pursue my Masters in Technical University Dresden, Germany which is one of top ranked university in TU 9 consortium of Germany. Currently, I am studying Masters in Molecular Bioengineering and working on stem cells for retinal regeneration in TU Dresden. At the end, I want to say “Knowledge Builds Bridges” and FIRST has provided me with knowledge which acts as a bridge for my success. So my success story is based on FIRST, which was really a life changing experience for me.



## Student Views

Some of our 1st Professional students share their views and stories on life at Akhuwat FIRST

### Dania Zafar Shahi

My name is Dania Zafar Shahi and I am a Christian. After I completed my intermediate, my parents were not in position to provide me with further education. I was very disheartened as I am disabled and cannot move about normally which made me worried about my future. Before my admission in Akhuwat FIRST, I was a little confused about the environment of the university. But when I joined, I realized that this is the only institute in Pakistan which does not discriminate against minority communities. All the teachers are hardworking, loving and caring. They make efforts for our comfort and help us to achieve good results. They show us the same love and care that they show the Muslim students.

I am really happy to be here and to choose biotechnology as a professional degree. I will excel in my profession and will work for the development, health and sustenance of mankind. I will try my best to return this scholarship by supporting other students.

Thankyou Akhuwat. Thankyou Dr. Amjad Saqib



### Qamar Shehzad

My name is Qamar Shehzad. I belong to a very poor and uneducated family. My home is in a village area which is close to a Muridke, a small city of Punjab. During my Intermediate, our financial condition was quite unstable. I worked at a truck station for loading and unloading of heavy luggage to cover my study expenses. My parents are illiterate and nobody was available to guide me for my future. However, I continued my education despite all these problems. I achieved 78% marks in the intermediate examination. After the completion of intermediate examinations, I was unsure about my future. I was unable to pay the fee of any public sector university. I started working as a labourer for construction of roads and wasted a year. During that time, I became very pessimistic about my future.

One day, I came across an advertisement about scholarship positions for deserving and talented students at Akhuwat FIRST. I decided to apply for that position. I was overjoyed when I saw my name in the first merit list of successful candidates. I consider myself to be very lucky as I am receiving education of an international standard in this institute. Most of the teachers are PhD qualified. My parents are very happy. After the completion of my studies, InshAllah, I will try to return the expense incurred by Akhuwat, by supporting other needy students.



## Muhammad Ilyas Jonejo

My name is Muhammad Ilyas and I belong to Kot Mithi of Tharparkar. Tharparkar is a very backward area of Pakistan where even basic necessities of life are not available such as water, electricity, hospitals etc. Our village is in a desert area where we can grow only one crop in a year and we don't have any other source of income. Most of the people in our area are uneducated. In the last year, more than two hundred children have died in our district due to famine. We don't have clean water and that is one of the biggest reasons for health problems in our district.

When I heard about the scholarships by Akhuwat FIRST, I contacted the administration to inquire about the admission. My uncle borrowed money from different people for my train ticket to Faisalabad. After passing the test, I was granted admission in this institute. When I came here, I saw a computer for the first time in my life. We are receiving such facilities which people of our area can't even dream of. We are provided with the best food and clean water. We are taught by highly qualified teachers. As I am studying in a quality institute for the first time, the course is difficult for me. Once I become qualified, I will teach in my village and will try my best to spread the message of education to my people.



## Rizwan Shah

My name is Rizwan Shah. I am from Quetta, which is hundreds of kilometers away from Faisalabad. I lost the will to live when my best friend, a polio worker, was killed for some unknown reason. His blood bathed body was lying in my lap and the pain of losing him was eating me alive. The realization that I will never see him again numbed my senses. It was at that time of hopelessness that I got to know about Akhuwat-FIRST. It gave me a purpose, hope and the will to live, and became my second home.



## Sabir Shah

I am Sabir Shah, a student of BS Biotechnology from Swat, Khyber Pakhtunkhwa. Leaving home to join Akhuwat-FIRST was one of the most crucial decisions I have ever made. Today, when I look back at the time that I have spent here, I feel that I made the right decision. Akhuwat-FIRST not only provides an experienced faculty, ample study resources, scholarships, labs and quality education, it also teaches us to accept differences and celebrate diversity. The institution instills in us a complete set of core values, integrity, honesty and commitment.



## Admissions Office

The Admission Office primarily assists students in every possible way; it serves, directs and administers the students when they step in the Institute for admissions. It is the mission of the Office of Admission, to provide accurate information regarding programs, activities and services to prospective and current students, parents, and the general visitors. Our staff members strive to be efficient, courteous and informative for the students. We help students to explore different options while making decisions for their future endeavors. Akhuwat-FIRST invites applications for admissions to its B.S (Hons) Biotechnology program once in a year (for more detailed informations contact at given numbers). Follow these steps to **TO APPLY FOR ADMISSION** at Akhuwat-FIRST:

**Step 1:** Students who are interested to apply are advised to visit the campus or contact with concerned person for getting more detailed information about admission.

**Step 2:** After deciding, fill application form and send to the Admission Office. The Admission

Office issues a letter bearing reference number, admission test date, date of interview (if any) as well as the venue of the test.

**Step 3:** The admission form can be submitted online [www.akhuwatfirst.edu.pk](http://www.akhuwatfirst.edu.pk) or by using the Akhuwat-FIRST admission email ID. Applications duly filled in; can also be submitted along with all required documents at the admission office within the announced deadline.

**Step 4:** The merit list of successful candidates will be announced and acceptance letters at home addresses of these candidates.

**Step 5:** On deposit of dues, within the deadline, students are issued their registration numbers and are given the courses to study in the first semester. Before commencement of classes, students are expected to attend an orientation session and collect their timetable from the information desk.

# Fee structure and Scholarships

## 1. Fee Structure

The institute offers merit and need base scholarship positions. However, fee structure for self-finance students are described below:-

Tuition Fee: 150000 per semester

Admission Fee: 25000 (Once in degree)

Registration fee (UHS): 10500/- (Once in degree)

The fee can be submitted in monthly installments. The University reserves the right to change fee structure from time to time.

## 2. Scholarships

It is the policy of Akhuwat-FIRST to encourage bright students by offering various scholarships each year. These scholarships are awarded to outstanding students on the basis of financial need and academic merit, or both and cover the tuition fee, lunch, hostel facility, transport and examination fee. If a student meets the minimum requirements for multiple awards, they will automatically be awarded the scholarship. The deserving students can obtain complete Scholarship Application Form from the university website ([www.akhuwatfirst.edu.pk](http://www.akhuwatfirst.edu.pk)).



Akhuwat FIRST offers limited merit and need based Scholarships/ Various Types of Fee Concessions and Financial Assistance

## 3. Monitoring the Beneficiaries of Scholarships

The Central Scholarship Committee of Akhuwat-FIRST will formally review cases of all scholarship holders every semester for monitoring academic progress as per scholarship policy. It will submit its recommendations to the Akhuwat Head Office, Lahore for the continuation of the scholarship. For the strict compliance, if scholarship beneficiary fails to perform, then his/her scholarship can be suspended/terminated on the recommendation of the Head of Academics.

## Academic Rules and Regulations

### A. Dressing:-

The students must wear decent proper dress. Chappals and shawls are strictly prohibited in campus for boys.

### B. Attendance:-

1. Every student will ensure his/her at least 85 percent attendance in lectures, seminars, tutorials and practical classes of each subject. If student(s) failed to do so then his/her name will not be forwarded to the controller of examination of the University for appearance in the concerned examination.
2. An exception to aforementioned rule can be accepted on account of sickness or special emergency considered justifiable by the head of the institute. A written application should be sent to the head of the institute by the student or his/her parent or guardian, reporting his/her illness or cause of absence.
3. Every student will attend his/her lectures, demonstrations, seminars, tutorial classes, internship and practical exams. However, if student(s) remain irregular or absent from his above-said duties then he/she will be fined by the competent authorities.
4. Students have to be present in time at any specified activity of the institution.

### C. Class Room and campus:-

1. Students are expected to extend highest level

of courtesy and respect towards their teachers.

2. No student is allowed to leave the lecture room without the permission of his teacher or until the class is dismissed.
3. Immediately after assembly of the class, the roll call will be marked and late comers will be marked as absent unless his excuse is accepted by the teacher. Any student misbehaving in the class room shall at once be reported by the teacher to the head of the institute, who will take such action as he may deem fit.
4. Students are not permitted to remain in the lecture room except during the prescribed hours of lecture.
5. Every student to whom books or other property of Government is entrusted shall be held responsible for their preservation in good condition and in case of lost, theft or damaged same person will be responsible to replace them or repay the cost.
6. Any student if found involved in breaking or damaging any property of the institute then he/she will have to pay the cost of repair or replacement.
7. Smoking is strictly prohibited in hostel and campus area.

## D. OFFENCES AND PUNISHMENTS

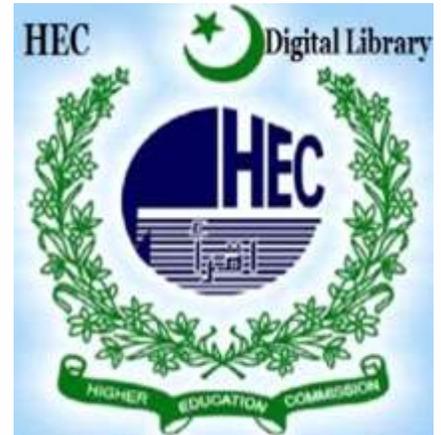
1. For all such offences that occur in the institute or in the hostels premises, head of the institute may at his discretion refer the case to the Disciplinary Committee, who shall have the power to investigate any student(s) or any member of institute. Committee will send his recommendations to the head of the institute who may or may not seek the ratification of these recommendations by the committee.
2. After considering the recommendations of the Disciplinary Committee. Head of institute, in his/her authority may take one or more of the following forms depending upon severity of the offence.
  - i. The student may be asked to tender an apology, verbal or written. This shall be placed on the student's record.
  - ii. A student may be placed on probation for a period up to one year. If during the period of probation he/she fails to improve his/her conduct, he/she may be expelled from the Institute.
  - iii. A student may be fined up to Rs. 25000/-.
  - iv. Scholarship may be suspended or stopped.
  - v. A student may be suspended from the institute roll for a period determined by the head of the Institution.
  - vi. The student may be expelled from the institute for a period determined by the head of the institution on the recommendation of the Disciplinary Committee.
3. Regulations Relating to Expulsion
  - i. Expulsion whenever imposed on a student shall mean the loss of a specific duration of studies as determined by the head of the institute and will mean his/her being debarred from the University Examination during the period of his/her expulsion.
    - ii. A student expelled from an institute shall not be readmitted before the expiry of the period of his/her expulsion.
    - iii. Cases of expulsion shall be reported to the University by the head of the institution concerned for registration and notification.
  4. A student shall continue to be under the disciplinary jurisdiction of the head of the institute till the declaration of the result of Final professional examination.
  5. The students shall not keep in their possession firearms, other weapons of offence and narcotics in the premises of the institute, attached hospitals and hotels. Disciplinary action shall be taken against the students found guilty of contravention of this rule.
  6. The head of the institute is competent to impose and remit fines.
  7. The head of the institute is competent to impose punishment as deemed necessary.
  8. The decision of the head of the institute in all cases shall be considered as final.
  9. The student may file an appeal against cancellation of admission/ degree registration to the director of institute within a period of 30 days. The head of institute will give him an opportunity to be heard in person. However, the decision of the head of institute will be final and will not question in any court of law.

## Campus Facilities and Services

### Library

Akhuwat-FIRST has a full-service library on campus to serve the study and research needs of its students and faculty members. The library has a stock of over 10,000 books from the different fields of science. In addition, the Higher Education Commission, Pakistan has given our campus access to “Digital Library” which contains more than 12,000 online full-text journals, international databases, and other material published online worldwide. This invaluable research material may be accessed by all of our students, even from their home computers.

In addition to routine operations, the library also offers, Ask a Librarian, Content Alert, Electronic Document Delivery, Anti Plagiarism and Citation Services. It is a fully user-centered and research oriented library with peaceful learning environment.



### IT Infrastructure

Akhuwat-FIRST provides a learning environment through its meticulously planned IT infrastructure. The academic experience of students is supported through different lab setup. Unsurpassed computing facilities are complemented with free printing, uninterrupted power supply, high bandwidth internet access and Wi-Fi Hotspots to complete the “always connected” experience. Highly trained IT professionals are working devotedly for the smooth and uninterrupted provision of facilities.



## Research

Akhuwat-FIRST is actively involved in research in different areas of Biotechnology. The faculty members and researchers of the institute are trying their level best in uplifting the institutional research to the world's standards. In a short period, institute has established several international as well as national collaborations and an International conference on "Advancements in Biotechnology" has been organized in collaboration with Government College Women University, Faisalabad (GCWUF). This international conference was the first milestone achieved by Akhuwat-FIRST where many international and national renowned scientists presented their work. Moreover, research at Akhuwat-FIRST is more focused on commercialization and industrialization of biotechnology products.



### Areas of Research

The major areas of research are;

- Plant Molecular Virology and Gene silencing
- Plant Tissue Culture
- Human Molecular Genetics
- Microbiology
- Biochemistry
- Protein chemistry

### International Research Collaboration

Akhuwat-FIRST has established collaboration with international research groups working in high ranked universities of the World and many research projects of international importance are in process. We have the aim to extend these collaborations to a level where our students get a chance to complete a part of their research projects in collaborating labs.



## Transport

Transport facility is also available for students of Akhuwat-FIRST without any charges. In addition to this service, buses transport students from various locations of Faisalabad to and from the Akhuwat-FIRST campus.



## Sports Facility

To provide a healthy environment to the students, a football ground, a cricket ground, a badminton courtyard, a volleyball courtyard and table tennis have been provided to, both male and female students. Starting university isn't just about studying – it's a time when you will meet new friends, experience new places and get involved with the numerous social activities that your university has to offer.





**Pictures of Akhuwat-FIRST Campus**



## Modern Class Rooms



## Mosque

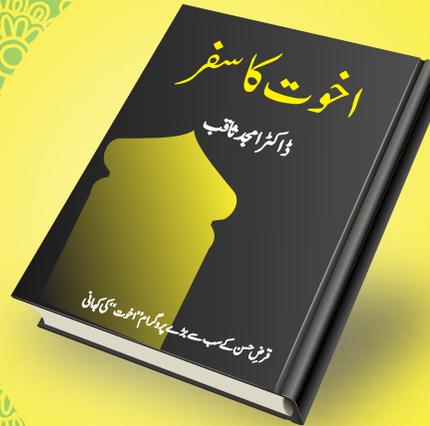
To cater for the spiritual well-being, separate arrangements of the male and female students is managed for prayers in the campus mosque.



# AKHUWAT KA SAFAR

*Expressions of Empathy, Care &  
Compassion enclosed in a body  
of Book sharing  
"Journey of Akhuwat"*

By  
Dr. Amjad Saqib



### **Akhuwat Youth Leadership Program 2016-17**

This will be a residential, intensive and comprehensive leadership workshop in Lahore- It aims to reach out to Pakistani youth and sensitize them towards becoming compassionate leaders for their country tomorrow, and beyond (10 days Residential Workshop).

### **Akhuwat Outreach Internship Program**

Akhuwat Outreach Program (2016) will be conducted in different districts of Pakistan. This program will be of one week duration focusing on social development and volunteerism. The age group of participants will be 18 -25 years.

- Akhuwat Internship Program for Sargodha
- Akhuwat Internship Program for Rawalpindi
- Akhuwat Internship Program for Multan
- Akhuwat Internship Program for Gujranwala
- Akhuwat Internship Program for Faisalabad
- Akhuwat Internship Program for Bahawalpur
- Akhuwat Internship Program for KPK
- Akhuwat Internship Program for Gilgit Baltistan



### **How To Apply for the Akhuwat Leadership and Youth Fellowship**

- For applying to any of the above programs kindly visit our website [www.akhuwat.org.pk](http://www.akhuwat.org.pk) and [www.aisem.com.pk](http://www.aisem.com.pk)
- Finalized schedule of Akhuwat Internship and Leadership Program (Akhuwat Youth Fellowship) modules will be available on our website. For updates visit our website.
- You can see glimpses of our Akhuwat Youth internship & Leadership Program 2013-16 on:-
  1. [www.facebook.com/akhuwatinternshipprogram](https://www.facebook.com/akhuwatinternshipprogram)
  2. Contact us at [akhuwatinternship@gmail.com](mailto:akhuwatinternship@gmail.com)
  3. [www.facebook.com/akhuwatinternshipandleadershipprogram](https://www.facebook.com/akhuwatinternshipandleadershipprogram)

# BUY A BRICK - BUILD A UNIVERSITY



AKHUWAT

## SPONSOR A CHILD - BUILD PAKISTAN

HELP AKHUWAT EDUCATE THE TALENTED AND NEEDY STUDENTS OF PAKISTAN

- |  |                 |
|--|-----------------|
| • Standard Class Room                      | PKR 1.2 million |
| • Special Class Room                       | PKR 2 million   |
| • Science Lab                              | PKR 5 million   |
| • Sports Complex                           | PKR 50 million  |
| • IT Lab                                   | PKR 10 million  |
| • Library Block                            | PKR 50 million  |
| • Auditorium                               | PKR 30 million  |
| • Central Dining Hall and Community shops  | PKR 30 million  |
| • Hostel Facility (1 Block)                | PKR 150 million |
| • Language laboratory                      | PKR 10 million  |
| • Endowment Fund for 1 student scholarship | PKR 5 million   |

Meezan Bank Account No.: 02220100097547

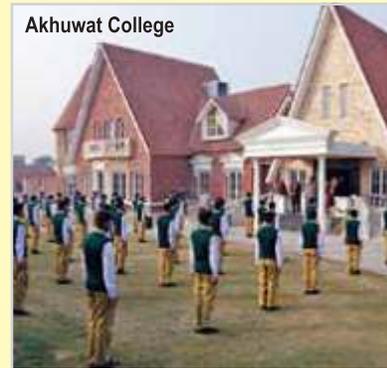
Account Title: Akhuwat



Akhuwat School - Assembly Time



Akhuwat Volunteers



Akhuwat College

BE A CATALYST OF CHANGE  BE A PROUD DONOR

[www.akhuwat.org.pk](http://www.akhuwat.org.pk)

[www.aisem.com.pk](http://www.aisem.com.pk)

# Akhuwat Family-Together!

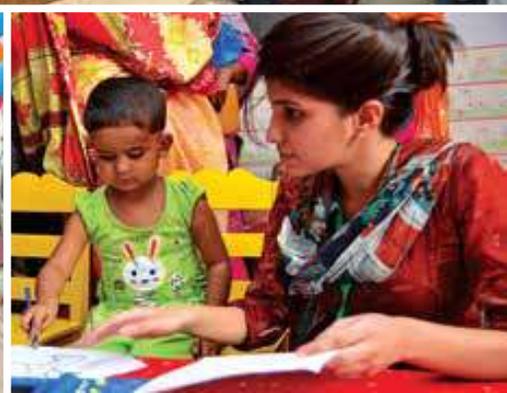


(Annual Ijtima of Akhuwat Family in Faisalabad)



# AKHUWAT VOLUNTEER SERVICES

The Akhuwat Volunteer Services Program promotes volunteerism amongst students and professionals. This program provides exposure in the areas of community service, disaster management, capacity building and event management to the volunteers. A network has been created whereby the volunteers can independently undertake projects across the country. In the future individual's chapter will be opened in different colleges and universities. The program will also expand internationally. It is envisaged that by the year 2020, Akhuwat will have more than 50,000 registered volunteers around the world.



## AKHUWAT YOUTH SOCIETY

Akhuwat generates much of its support from its volunteers, especially the youth. To inculcate in them a sense of responsibility and ownership, Akhuwat has established 'Akhuwat Youth Societies' in numerous prestigious schools, colleges and universities across Pakistan, such as Aitchison College, University of Engineering and Technology (JET) Lahore, Lahore University of Management Sciences (LUMS), Lahore Schools of Economics, Punjab University, Lahore College for Women University, Beaconhouse National University (BNU), University of Central Punjab (UCP), Government College University Lahore, School for Contemporary and Islamic Learning (SCIL), University of Management and Technology (UMT), Kinnaird College, King Edward Medical College, City School, Lahore Grammar School, National College of Business Administration and Economics, and many more.

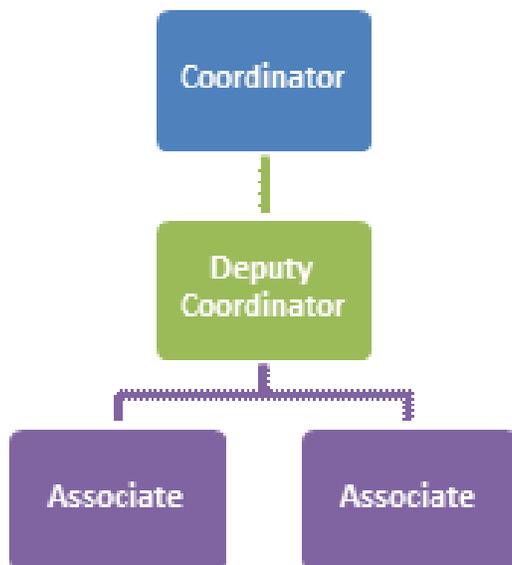


MoU Signing between Akhuwat Education Services and Lahore College for Women University



Akhuwat Youth Society is a formalized collaboration between Akhuwat and the educational institution. It is a structured unit, with three tiers of function and reporting:

The Coordinator is responsible for:



1. Supervising the overall campaign in the Educational Institution (E.I)
2. Acting as a liaison between designated Akhuwat Coordinator and E.I
3. Identifying a team of Deputy Coordinator and Associates to assist him/her in implementing the campaign
4. Developing a responsibility matrix demonstrating the responsibilities of the Society who will be in direct contact with the students
5. Sharing monthly progress report with Akhuwat coordinator
6. Ensuring transparency in donation collection
7. Developing a plan for and conducting a drive for Akhuwat Clothes Bank
8. Arranging bi-annual seminars/workshops and handling all related logistics
9. Executing his/her duties with utmost loyalty, responsibility and determination, ensuring compliance with the Akhuwat philosophy at all times
10. Coordinate Buy a Brick -- Build a University Campaign

The Deputy Coordinator will be responsible for:

1. Assisting the Coordinator in smooth implementation of the campaign
2. Organizing weekly meetings of Society, compiling weekly reports, and submitting to the Coordinator for verification
3. Assisting in setting up kiosks in his E.I and ensuring participation of student body
4. Ensuring social media coverage of all Akhuwat related activities in his E.I
5. Executing his/her duties with utmost loyalty, responsibility and determination, ensuring compliance with the Akhuwat philosophy at all times
6. Support Buy a Brick ----- Build a University Campaign
7. Creating awareness about ALFP and AIOP registration and activities



The Associates will be responsible for:

1. Reaching out to the student body and encouraging them to contribute to the cause of Akhuwat
2. Ensuring participation of student body in seminars and workshops of Akhuwat
3. Completing monthly targets related to campaigns
4. Reporting to Deputy Coordinator and Coordinator in weekly meetings
5. Executing their duties with utmost loyalty, responsibility and determination, ensuring compliance with the Akhuwat philosophy at all times
6. Promoting memberships of the society

In Akhuwat Youth Society at Akhuwat FIRST, the students will be given the unique opportunity to develop their networking skills, gain confidence, create bridges between communities and learn the art of becoming ambassadors of Akhuwat.







**THE SPIRIT OF  
AKHUWAT**



## Social Responsibility Projects of Akhuwat-FIRST

The Chairman Akhuwat, Dr. Muhammad Amjad Saqib shared his vision with the staff of Akhuwat FIRST to develop a program to educate the maximum number of illiterate persons living in the surroundings of Akhuwat FIRST. To meet these objectives, preliminary survey was conducted and on the basis of the survey, problems of local community have been mapped. The major issues are non-availability of higher secondary schools, lack of basic education facilities including computers etc. The people in the surrounding areas were not aware of modern techniques of Agriculture. In lieu of social responsibility projects, the institute has started three different projects for the welfare of local community including a 2.5 year Matric Program, IT classes and Modern Agriculture Training Program.

### 2.5 Year Matric Program

This Project was started after getting inspired from System Foundation, Pakistan. This project aimed at bringing the illiterate persons into mainstream of society and help them to be a useful citizen of Pakistan. A curriculum for enrolled students has been devised where they will be learning from basic alphabets and digits to prescribed course in 2.5 years. The institute has started this project successfully in 2016.



### IT Classes

To enhance the awareness about basic computer knowledge to students of local deserving communities, different programs have been started at the institute's state of the art IT lab. In this program, Akhuwat-FIRST will be educating the enrolled students with basic hardware, software, MS office, internet surfing and other computer operation techniques for up grading their skills. This facility is being provided to local students without any cost after enrollment in this project.



### Modern Agriculture Training program (MATP)

The purpose of this project is to educate farmers about precision agriculture and modern day farming practices impact farming operations and agribusiness around the world.

Through MATP, technically trained instructors will teach small scale farmers theoretically and by hands-on experience in beekeeping, field crops, organic farming, tunnel technology and nursery business.



### Middle School Initiative

A middle school will be started at Akhuwat-FIRST to promote education in the local community. Well qualified teachers will not only teach them about syllabus but also train them to combat with the challenges of society.



## Akhuwat-FIRST Youth Society



Students are celebrating “Cleaning Day” at Akhuwat-FIRST



Akhuwat-FIRST Youth Society started different welfare projects for the welfare of local community including 2.5 Year matric program and Akhuwat Wall in campus

## Different moments of Akhuwat School's Project & contribution of Akhuwat FIRST



PSSP interviewing team with chairman steering committee Akhuwat Faisalabad, Pervaiz Khalid Sheikh



Data entry of selected staff by Akhuwat-FIRST students

Akhuwat has adopted 150 schools in Faisalabad and Jhang districts. One hundred schools were adopted in the first phase and 50 in the second phase. The Akhuwat-FIRST team under the leadership of Group Head, Akhuwat Education Services, Syed Hussain Haider worked day and night for intense admission campaign, operationalization of schools, recruitment and selection of core team of Project (PMO & DMO) along with the hundreds of teaching staff, development of Akhuwat School's HELP LINE, monitoring system, multilevel training and orientation of faculty and staff.



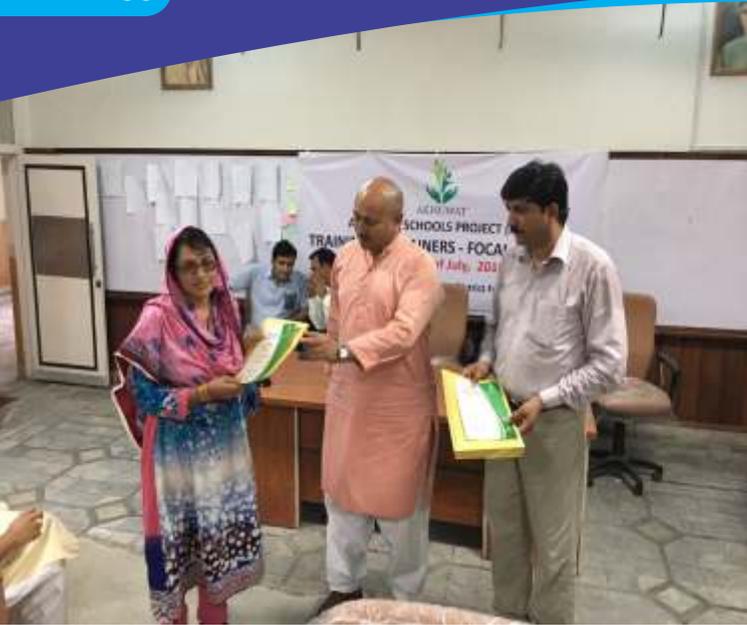
Visit of Mr. Tariq Mahmood, Managing Director, Punjab Education Foundation



Teacher's training workshop hosted by Akhuwat-FIRST



Teacher's training workshop hosted by Akhuwat-FIRST



Distribution of certificates by Syed Hussain Haider

Core Team of Akhuwat Schools Project



**Group photo of RABBT Foundation with trainees of Akhuwat Schools**



Two thousand school bags were distributed to students with the efforts of Administrator, Akhuwat-FIRST in the initial phase, with 20,000 more bags in the process.



## Faculty of Biological Sciences

Head of Academics

**Dr. Irfan Ali**

Assistant Professor

M.Phil (QAU), PhD Biotechnology (PIEAS)

Co-ordinator to UHS

**Muhammad Shafiq**

Senior Lecturer

PhD Scholar (PIEAS, NIBGE)

## Faculty Members

**Prof. Abdul Aziz Sabir**

M.Phil Mathematics/  
Computer Science (USA)

Professor

**Dr. Zafar Iqbal**

M.Phil Biochemistry (UAF)  
PhD Biotechnology (PIEAS)

Assistant Professor

**Miss Asma Aziz**

M.Phil Zoology (GCUF)

Lecturer

**Miss Majeeda Rasheed**

M.Phil Microbiology (UVAS)

Lecturer

**Miss Tehreem Hayat**

M.Phil Biotechnology (COMSAT)

Lecturer

**Dr. Neelam Sultan**

PhD Biochemistry (UAF)

Visiting Assistant Professor

**Dr. Amir Hameed**

PhD Biotechnology (PIEAS)

Visiting Assistant Professor

**Dr. Nosheen Rashid**

PhD Chemistry (Ireland)

Visiting Assistant Professor

**Prof. M. Younis Jilani**

M.A English (PU), MA Urdu (PU),  
Tesol (Canada)

Visiting Lecturer

<b>Muhammad Zubair</b>	M.Phil Biotechnology (NIBGE, PIEAS)	Visiting Lecturer
<b>Mr. Umer Maqsood</b>	M.Phil Biotechnology (NIBGE, PIEAS)	Visiting Lecturer
<b>Ms. Shaista Javed</b>	M.Phil Biotechnology (NIBGE, PIEAS)	Visiting Lecturer
<b>Mr. Muhammad Shabir</b>	M.Phil Statistics (GCUF)	Visiting Lecturer
<b>Mr. Muhammad Arshad</b>	M.A Islamic Studies (UAF)	Visiting Lecturer
<b>Mr. Kashif Rasheed</b>	M.Phil Economics (GCUF)	Visiting Lecturer
<b>Mr. Usman Khalil</b>	MSc. (Hons.) Agriculture	Visiting Lecturer

### Foreign Adjunct Faculty Members

**Dr. Rob W. Briddon**  
Professor (UK)

**Dr. Muhammad Ikram Anwar**  
Assistant Professor (China)

**Dr. Vakil Ahmad**  
Assistant Professor (USA)

**Dr. Mahmood Rasool**  
Assistant Professor (KSA)

**Prof. Dr. Athar Atta**  
Professor (Canada)

### Admin Department

**Col. (Retd.) Monim Niaz**  
Administrator

**Hamid Saeed**  
Admin Co-ordinator

### IT Department

**Muhammad Affan Riaz**  
MCS Software Engineering  
IT Incharge

### Accounts Department

<b>Muhammad Zubair</b>	Account Officer
<b>Imran Ashraf</b>	Officer Clerk

## Recent International Publications of Akhuwat FIRST

Combined ability of chromium (Cr) tolerant plant growth promoting bacteria (PGPB) and stress alleviator (salicylic acid) in attenuation of chromium stress in maize plants. *Plant Physiology and Biochemistry* 2016. .doi.org/10.1016/j.plaphy.2016.08.014

Heavy metal contamination of agricultural soil has become a serious global problem. This study was aimed to evaluate the effects of two chromium (Cr) tolerant plant growth promoting bacteria (PGPB) in combination with salicylic acid (SA) on plant growth, physiological, biochemical responses and heavy metal uptake under Cr contamination. A pot experiment (autoclaved sand as growing medium) was performed using maize (*Zea mays* L.) as a test crop under controlled conditions. Cr toxicity significantly reduced plant growth, photosynthetic pigment, carbohydrates metabolism and increased H<sub>2</sub>O<sub>2</sub>, MDA, relative membrane permeability, proline and Cr contents in maize leaves. However, inoculation with selected PGPB (T2Cr and CrP450) and SA application either alone or in combination alleviated the Cr toxicity and promoted plant growth by decreasing Cr accumulation, H<sub>2</sub>O<sub>2</sub> and MDA level in maize. Furthermore, dual PGPB inoculation with SA application also improved plant performance under Cr-toxicity. Results obtained from this study indicate that PGPB inoculation and SA application enhanced Cr tolerance in maize seedlings by decreasing Cr uptake from root to shoot. Additionally, combination of both PGPB and SA also reduced oxidative stress by elevating the activities of enzymatic and non-enzymatic antioxidant, also indicated by improved carbohydrate metabolism in maize plant exposed to Cr contamination. Comparatively, alleviation effects were more pronounced in PGPB inoculated plants than SA applied plants alone. The results suggest that combined use of PGPB and SA application may be exploited for improving production potential of maize in metal (Cr) contaminated soil.

### Accepted Research Articles

Evaluation of Matrix Metalloproteinases, Cytokines and Their Potential Role in the Development of Ovarian Cancer. *PLOS ONE*

Prevalence of hypothyroid disease a cross sectional study Among Male and Female Population of Balochistan, Pakistan. *International Journal of Biosciences*

### Submitted Research Articles

5' end of Antisense V2 confers resistance against monopartite begomovirus *Cotton leaf curl Multan virus Burewala strain*. *Virology Journal*.

Real-time quantitative PCR assay for the quantification of virus and satellites causing leaf curl disease in cotton in Pakistan. *Journal of Virological Methods*.

## Research thesis of Akhuwat FIRST students (2016)

<b>Name of student</b>	<b>Title of Thesis</b>
Mr. Ahmad Raza	Marker assisted introgression of CLCuD resistance into local Cotton cultivar
MR. Muhammad Mohsin Arshad	Diagnosis of Hepatitis C Virus and its different genotypes; a qualitative approach
Ms. Jannat Sohail	Cloning of Cotton Leaf Curl Disease associated begomovirus and satellite molecules
MS. Uswah Khalid	Curtailling Hyperhydric response of in vitro regenerating Tobacco ( <i>Nicotiana tabaccum.</i> ) cultures
MS. Amina Sattar	Toxicological assessment of Pesticides In Vivo and In Vitro
MS. Laraib Aziz	Optimizing of regeneration condition for Canola
Ms. Saima Mukhtar	High frequency regeneration system optimization for Wheat Cultivar Punjab-2011
Mr. Muhammad Umar Ahsan	Isolation, Polymerase chain reaction based confirmation of Salmonella enterica from poultry and its drug resistance evaluation
Ms. Kainat Wadood	Assesment of Genetic variation among elite Sugarcane lines using molecular marker technology
Mr. Faizan Anjum	Multiplex Polymerease Chain Reaction based diagnosis of <i>Mycoplasma gallisepticum</i>
Mr. Muhammad Qamar Ashfaq	Biodegradation of Pyrethroids

## Research thesis of Akhuwat FIRST students (2016)

Name of Student	Title of Thesis
Mr. Khaliq Ahmed	PCR amplification and sequence analysis of Cytochrome C gene from Dusky Bug
Mr. Saad Ullah	In Vitro screening of ATNHX1 gene in bacterial systems for salt tolerance
Mr. Ali Hasnain	RNAi mediated gene silencing in Ticks
Muhammad Imran Farooq	Isolation and identification of organic Sulfur (c-s bond cleaving) metabolizing microorganisms from local Environment.
Muhammad Asim Ali	Synthesis of Candimum Selenide quantum dot, its characterization and applications.
Muhammad Nisar Mughar	Regeneration potentials of different Soybean ( <i>Glycine max-l</i> ) explants.
Rana Waseem Sajid	In-Vitro evaluation of Lactic Acid Bacteria for probiotic safety efficacy.

**2016 — Al Hamdollilah!**

***One hundred percent result of Akhuwat-FIRST and best result of UHS in the subject of Biotechnology.***

# Research Projects submitted to Higher Education Commission (HEC) Pakistan

Enhancing Cotton Germplasm, improving Resistance to Cotton Leaf Curl Virus (CLCV) Disease and supporting Cotton best Management Practices (BMPs) for small farmers



Raman micro spectroscopy for characterization/ diagnosis of the oral cancer

## Other projects

- Production of citrus oil from peel waste
- Optimization of conditions for production of organic vegetables in green house
- Identification of seedborne geminiviruses from different field crops





## Akhuwat-Faisalabad Institute of Research Science and Technology

affiliated with

### University of Health Sciences, Lahore

**Please write in capital letters**

**Name:** \_\_\_\_\_

**Father's Name:** \_\_\_\_\_

**CNIC No.:** \_\_\_\_\_

**Nationality:** \_\_\_\_\_ **Date of Birth:** \_\_\_\_\_

**Mobile No.:** \_\_\_\_\_ **Place of Birth:** \_\_\_\_\_

**PTCL No.:** \_\_\_\_\_ **Email ID:** \_\_\_\_\_

**Postal Address:** \_\_\_\_\_

#### Previous Qualifications

Certificate/ Degree	Passing Year	Board/University	Marks Obtained	Total Marks	Grade

I undertake that the information provided to the Akhuwat-Faisalabad Institute of Research Science and Technology are correct according to the best of my knowledge and if I fail to fulfill the eligibility criteria for admission, the institute can cancel my admission at any stage if admitted. I will observe the rules and regulations of the institute as prescribed in the prospectus.

**Signature of applicant:** \_\_\_\_\_

**For office use only:**

**Recommended by**

**Approved by**

## Instruction to fill application form

Use **CAPITAL LETTERS** only, throughout the application form,

You can write “NOT APPLICABLE or N/A” in irrelevant boxes to convey that the column is not relevant for your case or Leave that column blank.

Try to fill each and every column.

Use blue or black pen to fill.

**you must be careful in filling up the Application Form especially applicant name and submit the form without mistakes. The applicant shall be held responsible for any mistake in the application form submitted.**

## Glimpses of Events at Akhuwat-FIRST



## Glimpses of Events at Akhuwat-FIRST





Mr. Nazir Tunio, Director Akhuwat with Students and Faculty of Akhuwat-FIRST

## Meeting of the “Agricultural Reforms Consultative Group” was hosted in January 2016 by Akhuwat Faisalabad Institute of Research Science and Technology.

The agenda of the meeting is elaborated as follows:-

- (i) To reduce the cost of agricultural inputs;
- (ii) To bridge the yield gap of major crops vis a vis developed economies;
- (iii) To reform the existing exploitative marketing systems;
- (iv) To transition from conventional to high value crops;
- (v) To promote mechanization of agriculture;
- (vi) To create a cadre of service providers in every village of the country;
- (vii) To train farmers for 'Good Agricultural Practices' or GAP, as the term is commonly used;
- (viii) To establish linkage between farmers and exporters;
- (ix) To promote value addition of agricultural products at farm level;
- (x) Reduction in loss of perishable fruits and vegetables; and
- (xi) To establish market linkages for agricultural produce.



Federal Minister of National Food Security and Research, Mr. Sikandar Hayat Khan Bosan addressing the participants

The participants of the meeting were Dr. Amjad Saqib (Chairman Akhuwat) Sikandar Hayat Khan Bosan (Federal Minister of National Food Security and Research, Govt. of Pakistan) Seerat Asghar (Ex-Federal Secretary of National Food Security and Research, Govt. of Pakistan) Prof. Dr. Rana Iqrar Ahmed Khan (Vice Chancellor, University of Agriculture Faisalabad) Dr. Iftikhar Ahmed, Director General; PARC, Islamabad) Muhammad Saleem Ranjha, Secretary BISP, Govt. of Pakistan.

Prof. Syed Hussain Haider, Group Head, Akhuwat Education Services/Project Director Akhuwat University, College and Schools, Dr. Mubarak Ahmed, Head, Department of Plant Protection, PARC, Dr. Waqar Ahmed, VCD Specialist, CNFA, US-AID, Mr. Peter, CNFA, US-AID, Col.(Retd.) Monim Niaz, Administrator, Akhuwat-FIRST, Dr. Irfan Ali, Head Academics, Akhuwat-FIRST, Presentations by Prof. Syed Hussain Haider and Mr. Seerat Asghar. Prof. Syed Hussain Haider explained the different projects of Akhuwat and Mr. Seerat Asghar highlighted recent developments and projects of Agriculture.

Dr. Iqrar Ahmed Khan elaborated some gaps in the agriculture policy. It was suggested that production cost and marketing are the main issues of agriculture. Dr. Amjad Saqib asked the participants about possibilities to overcome the problems of farmers. Honorable Minister, Sikandar Hayat Khan Bosan requested Dr. Amjad Saqib to play role in the development of Agriculture and to start the interest free loans for farmers.





MoU Signing between GC Women University Faisalabad and Akhuwat Education Services



Federal Minister of National Food Security and Research, Mr. Sikandar Hayat Khan Bosan inaugurating new and modern Biotechnology Laboratory at Akhuwat-FIRST



Inauguration of glasshouse by Mr. Seerat Asghar, Ex-Federal Secretary of Ministry of National Food Security and Research at Akhuwat-FIRST



Group photo of Akhuwat-FIRST students with Honorable Federal Minister Mr. Sikandar Hayat Bosan, Director PARC, Akhuwat Board of Directors, members of USAID are also present in the event



# **1st International Conference on Advancements in Biotechnology**

# **ICAB 2016**

*30<sup>th</sup>-31<sup>st</sup> March, 2016*

**Akhuwat-Faisalabad Institute of  
Research, Science & Technology  
and  
Government College Women University Faisalabad**



## 1<sup>st</sup> International Conference on Advancements in Biotechnology



First International Conference on “Advancements in Biotechnology” was organized by Government College Women University Faisalabad (GCWUF) and Akhuwat-Faisalabad Institute of Research Science and Technology (Akhuwat-FIRST), on 30<sup>th</sup>– 31<sup>st</sup> March, 2016. This international conference gathered more than 1100 scientists, doctors, clinical researchers and biotechnologists shared their latest discoveries and researches in their respective fields of biotechnology.

Biotechnology is growing sharply with more than 1,500 companies and approximately 600,000 employees. Many analysts are confident that the 21<sup>st</sup> century is the century of biotechnology, just as the 20<sup>th</sup> century was the era of electronics and computers. This international conference provided the platform for emerging biotechnologists and decision makers to discuss the present findings and important developments in basic and applied biotechnology. Many leading scientists participated in the event.

Throughout the two days conference program, this platform provided the opportunity to students and young researchers to both network and hear leaders from the international academic and corporate biotechnology communities.

Each day commenced with keynote lectures in two parallel sessions. The platform of ICAB-2016 presented 19 keynote and invited lectures whereas 47 Session lectures.

The conference proffered an opportunity to basic research, agricultural, food technology, clinical findings and practices in the various thematic sessions along with poster sessions, covering almost all the major areas of biotechnology.

The events proved much larger than expected



Foreign delegates with organizing team

with over 65 presentations delivered in various sessions of biotechnology.

### TRACKS OF CONFERENCE (ICAB 2016)

1. Agriculture and Plant Biotechnology
2. Environment and Fisheries Biotechnology
3. Food Biotechnology
4. Industrial and Manufacturing Biotechnology
5. Medical Biotechnology
6. Bioinformatics and Nanotechnology



### INAUGURAL SESSION

The inaugural ceremony marked the commencement of this mega event on 30<sup>th</sup> March

2016, seeking to provide eminent scientists the opportunity to present their cutting edge researches in different fields of Biotechnology. On the inauguration day, many world renowned scientists including Prof. Dr. Robert William Briddon (UK), Prof. Dr. Munir Ozturk (Turkey), Prof. Dr. Hans Werner Koyro (Germany), Prof. Dr. Yunus Dogan (Turkey), Prof. Dr. Arnold Gegechkori (Georgia), Prof. Dr. Cengiz Kaya (Turkey) participated. Among the national distinguished scientists, Dr. Khalid Mahmood Khan (S.I; Ex Vice Chancellor, Arid Agriculture University) Dr. Abdul Haq (Director Research, University of Faisalabad), Prof. Dr. Amir Jameel (UAF), Dr. Ibrahim Rajoka (S.I), Dr. Muhammad Afzal (NIBGE), Dr. Qaiser Mahmood Khan (DCS; on behalf of director NIBGE), Dr. Zafar Khalid

(Ex-Director biotechnology, on behalf of DG AARI) participated.

Prof. Dr. Naureen Aziz Qureshi, Vice Chancellor Government College Women University Faisalabad and Dr. Amjad Saqib, Chairman Akhuwat-FIRST extended a very warm welcome to the honorable leading scientists and young. This conference offered an in-depth assessment of the challenges involved in the dynamic and fast moving field of biotechnology.

Organizing team of ICAB-2016 welcomed leading scientists, industrialists, biotechnologists and other associated professionals to discuss the latest important developments, in their respective fields from various regions of the world.





## Lecture Sessions

The six simultaneously held sessions, offered successive Keynote lectures, Invited and Session lectures in various fields, disseminating the advancements and researches in diverse fields of biotechnology to over 1100 participants. A total of seven keynote lectures were delivered by Dr. Robert William Briddon (UK), Prof. Dr. Shahid Mahmood Baig (S.I), Dr. Noor Khan (UVAS), Prof. Dr. Athar Ata (Canada), Prof. Dr. Muhammad Ali (T.I; VC GCUF), Prof. Dr. Aftab Bashir (FC College University Lahore), Dr. Shahid Mansoor (S.I; Director NIBGE), Dr. Khalid Aziz (Senior Manager Rafhan Maize Products, Pakistan), Dr. Abid Masood (IFANCA, Hilal Food, United Kingdom) participated through his abstract/poster.

Each day the lecture sessions commenced with the Keynote lectures delivered by renowned scientists and biotechnologists, followed by Invited lectures delivered by Prof. Dr. Abdul Haque, Dr. Asma Haque, Dr. Mazhar Iqbal, Prof. Dr. Zafar Mahmood Khalid, Prof. Dr. Shahid Mahmood Baig (S.I), Dr. Muhammad Afzal, Prof. Dr. Ghulam Muhammad Ali, Prof. Dr. Ibrahim Rajoka (S.I), Dr. Khalid Mahmood Zia, Dr. Waheed S. Khan, Dr. Imran Amin and Dr. Ehsan-ul-Haq. Session lectures were held in 6 parallel sessions on Days 1 and 2 respectively. Moreover, in order to connect scientists from all over the world skype lectures were also arranged and Prof. Dr. Athar Ata from Canada, Adnan Akhter from Austria and Dr. Safwan Akram from United Kingdom delivered interesting talks on different aspects of biotechnology.

## Plant Biotechnology Session

The first session of the “1st International Conference on Advancements in Biotechnology” conducted on 30th March, 2016 in the GCWUF Auditorium was the Plant Biotechnology session. The session was chaired by Dr. Rob W. Briddon. The co-chair of the session was Dr. Ghulam Muhammad Ali, Deputy DG Research, National Institute for Genomics and Biotechnology (NIGAB), a recognized plant molecular biologist and expert on gene transformation. He is also known for his contribution in establishing two degree awarding departments in National Agricultural Research Council (NARC). The moderator of the session was Dr. Zafar Iqbal who is an assistant professor of Biotechnology at Institute of Biochemistry and Biotechnology, Punjab University Lahore.

Presentation from the senior and emerging scientists were delivered. The keynote lecture was given by Dr. Rob W. Briddon in which he discussed the genetic changes in begomovirus/betasatellite

complex causing cotton leaf curl disease in South Asia. This was followed by a lecture of Dr Ghulam Muhammad Ali which focused on the various biotechnological research endeavors going on in NIGAB. After these two lectures research articles by various scientists were presented.

At the end of each presentation questions from the audience were answered by the speakers. Overall the session covered different aspects of plant molecular biotechnology with special focus on the use of molecular markers, signal transduction and the benefits of expression of important genes in plants. The session was concluded by comments from Dr. Briddon.



## Environment and Fisheries Session

Prof. Dr. Zafar Mahmood Khalid, Chairman Biotechnology Department, Islamic International University, Islamabad opened the session as keynote speaker and highlighted the importance of biotechnology in Environmental Sciences. Later on Dr. Muhammad Afzal (Principal Scientist, NIBGE), shared his thoughts and experience while working on floating treatment wetlands for the remediation of sewage and industrial wastewater. He stated about the application of floating treatment in Pakistan for the remediation of sewage effluent of Faisalabad city, textile effluent and crude oil contaminated wastewater of Oil and Gas Development Company Limited (OGDCL).

Prof. Dr. Noor Khan, another well renowned scientist in the field of Fisheries, shared his views with the audience about the growth of different types of fish in Pakistan. Especially the emphasis of talk was on MMT Tilapia culture in Pakistan which has not been practiced on commercial basis due to its excessive breeding and small size. He told the audience that how the overproduction of Tilapia fish culture system can be controlled by mono-sex culture, preferable all male culture of Tilapia. These lectures were followed by different research work based presentation from young scientists.

At the end of the session, all the presenters were awarded with certificates and souvenirs.



## Food Biotechnology Session

Dr. Khalid Aziz started this session with his keynote speech. He gave a very thought provoking talk on GM crops. He talked about current scenario of GM crops in Pakistan by discussing the different aspects like adoption of GM crops, lack of bio-safety guidelines as well as inadequate marketing infrastructure. He briefly described about the absence of facilities for testing and labeling of GM products. So there is a chance of wide spread contamination as they are consumed by humans, poultry and animals. European Union has imposed restriction on the import of GM products. A skype presentation was delivered from Austria by Dr. Adnan Akhter. Participants appreciated

A Skype lecture was delivered by Adnan Akhter (Ex-scientist of FIRST) from Austria. Following the Skype lecture, different research articles were presented from young scientists across the Pakistan. Certificates were distributed at the end of session.



## Industrial and Manufacturing Session

Industrial biotechnology session was opened with the very interesting skype keynote talk of Prof. Dr. Athar Ata from Canada. His talk concentrated on natural products derived from plants, marine organisms and microorganisms used as anti-microbial, anti-viral and anti-inflammatory drugs in order to treat different diseases. He emphasized mainly on the enzymes which are essential to human life, mediating biochemical processes including metabolism, cellular signal transduction, cell cycling and development. Dr. Ata told the audience that an understanding of these diseases at molecular level has provided several enzyme inhibitors. He discussed about identification of natural products exhibiting potent bioactivities including anti-microbial, anti- $\alpha$ -glucosidase and anti-AChE activities. Moreover, the isolation, structure elucidation of new bioactive natural compounds and their structure-activity relationship was discussed.

Following Dr. Athar Ata's talk, Prof. Dr. Muhammad Ibrahim Rajoka (S.I) delivered a presentation on the overproduction of Lysin which is one of the most nine essential amino acids, deficient in cereal-based dietary sources. After Dr. Ibrahim's talk, extensive questions were asked about the overproduction of Lysin and he answered them very well.

Dr. Khalid Mahmood Zia described about his research work on biodegradable polymers, one of the most emerging science of future. He also talked about the future of bioplastic industry.

Dr. Ghulam Mustafa from University of Agriculture Faisalabad, helped the session chair and co-chair as moderator. Following the talks of guest speakers, different talks based on research work were delivered by young scientists which were also highly appreciated by audience. At the end of session, all the presenters were awarded with certificates and souvenirs.



Dr. M. Ibrahim Rajoka (S.I) distributing certificates

## Medical Biotechnology Session

Prof. Dr. Muhammad Ali, Vice Chancellor, GC university Faisalabad opened the session as keynote speaker and highlighted the importance of biotechnology in health sciences. His talk was especially emphasized on stem cells production and they could be helpful in producing different kinds of body tissues. Moreover, the role of recombinant DNA technology was also discussed in production of therapeutic proteins, antiviral drugs, clotting factors for haemoglobinopathies and vaccine for many lethal diseases.

Dr. Shahid Mahmood Baig (S.I), shared his thoughts and experience while working on genetic disorders in Pakistan. He stated about the prevalence rate of  $\beta$ -thalassemia in Pakistan and also discussed about the other genetic disorders including deafness, primary microcephaly and many other diseases. He shared his novel findings while working with microcephaly and put a spotlight on the genes responsible for this disorder. The research work

of Dr. Baig was really impressive and audience gave a big applause for his contribution in science.

Prof. Dr. Abdul Haque, another renowned scientist in the field of Health Biotechnology, shared his views with the audience about the Vaccines. Especially the emphasis on modern vaccines like recombinant vaccines, sub unit vaccines, DNA vaccines, conjugate vaccines and edible vaccines was worth listening and how these can be prepared using biotechnological tools. Moreover, the points related to therapeutic uses of vaccines were also very interesting in how these are helpful in stimulating the immune system nonspecifically.

Dr. Mazhar Iqbal, a well-known chemist in Pakistan was also invited to throw light on Lipid A, which is not only an integral part of membrane and essential for bacterial survival but also an epicenter of endotoxicity. His presentation on lipid A extraction and its characterization was really impressive especially for young scientists



Vice Chancellor GCUF



Dr. Shahid M. Baig (S.I) NIBGE

in the field of conjugate vaccines. He also expressed about the chemistry of Lipid A and how it is different in gram positive and gram negative bacteria. He also invited participants and students there for collaboration if they need any help regarding mass spectrometry, i.e LCMS and GCMS.

Dr. Asma Haque, was the next invited speaker in Health Biotechnology session and her talk really motivated many students to work in the field of drug resistance. She is an eminent scientist in the field of bacteriology and in her talk she mentioned about the enteric bacteria which are by far the most dominant enemies of mankind. She also expressed her view on the multiple drug resistance and resistance is prevailing due to uncontrolled use of antibiotics and a new term has recently been coined, extreme drug resistance which refers to bacteria resistance to all available drugs.

Dr. Ehsanul Haque who has devoted his whole life for science put light on RNA interference in health and disease. As a general physician, he told the audience about the possible use of RNAi in human diseases like cancer, certain viral diseases, genetic disorders and cardiovascular diseases. RNAi is useful in areas where other therapeutics are not working. Health session comprised of not only above mentioned talks but other participants from

different universities shared their research work related to Health Biotechnology. Dr. Vakil Ahmed from United States could not deliver his talk on the role of Ect4 in fly immunity and development, so Dr. Haq Nawaz who has a lot of experience in Raman spectroscopy, shared his research work on Raman spectroscopy for diagnosis of Hepatitis C with the audience.



## Bioinformatics and Nanotechnology Session

Prof. Dr. Aftab Bashir opened the session with his keynote lecture on protein modelling. He started his lecture by briefing the audience about different levels of organization in proteins i.e. primary, secondary, tertiary and quaternary. After that he linked the proteomics with bioinformatics and tools available online like protein data bank. He also shed light on homology modelling which refers to modelling of protein 3D structure using known experimentally determined structures of homologous protein as template. He described various steps involved in homology modelling which can help give an overview of the general features of the protein family, the degree of conservation, the consensus sequence motifs etc.

Following Dr. Aftab Bashir, Dr. Wahid S Khan presented the synthesis and characterization of iron oxide nanoparticles for the diverse applications. He told the audience that these nanoparticles range between 1 and 100 nanometers and have various applications in storage devices, catalysis, sensors and high sensitivity MRI for medical and therapeutic purposes. He also give an overview of the importance of scanning electron microscope which in his studies exhibited the morphological and size related characteristics of iron oxide nanoparticles.

Dr. Imran Amin from NIBGE delivered a comprehensive lecture on Next Generation sequencing used in viral diversity studies. In his presented studies, he performed NGS using Illumina-Miseq platform which proved an ideal candidate for viral diversity studies of geminiviruses. He also mentioned about the importance of NGS in different fields of Biotechnology and with its unprecedented throughput, scalability, and speed, next-generation sequencing enabled researchers to study biological systems at a level never before possible.

Dr. Nosheen Rashid from AKHUWAT-FIRST presented about the Raman micro spectroscopy for the characterization of cervical cancer. Cervical cancer is the 3rd most cancer affecting the woman worldwide and Dr. Nosheen stated in her talk that this disease can be prevented if diagnosed at early stages and Raman spectroscopy emerged as a promising technology for cancer diagnosis.

Dr. Safwan Akram elucidated about the biomimetic, biotechnology and nanotechnology during his skype talk from United Kingdom. He told the audience that how these can be combined to form low cost diagnostics, novel biomaterials, solar cells and surprise ingredients for aeroplane wings. He also introduced the use of these in bacterial toxicity, printing proteins, probing structure and functions of fluorescent proteins.

Dr. Asma Rehman, working as a senior scientist and have a lot of contribution in the science of nanotechnology, also shared her research work on functional porous polymers by emulsion templating. She described that porous materials are important due to their different properties like

high surface area, tunable porosity and many others can be combined with nanoparticles, resulting in a hybrid material with superior properties including higher surface area, higher loading of catalytic nanoparticles, improved mechanical strength, stability and durability.

Dr. Sadia Bajwa was also invited for presenting her research work on advanced biosensors. She described about the advanced material structuring platforms can be a valuable tool to design a range of versatile biosensors to detect from metal ions to microbes and biomimetic approaches can be utilized to design cost-effective and smart nanosensors to detect antibiotics selectively. Moreover, she also mentioned in her talk that advanced nanobiosensors can be designed for the detection of plant viruses.

Dr. Abid Ali Khan could not come to present his talk on “TMV: an excellent nanobioscaffold” due to some emergencies. The session concluded with the talks of two emerging students in the field of nanotechnology, Ms. Aleena Mushtaq and Ms. Seemab Iqbal.



Director NIBGE Dr. Shahid Mansoor (S.I) and Dr. Rob W. Briddon distributing certificates to participants

## Exhibition

The exhibition of 1<sup>st</sup> ICAB 2016 was another appealing aspect which proceeded in full swing on all two days of the conferences. The major exhibitors were the following:

- Coca cola
- Unilever
- Nestle
- NIAB
- NIBGE
- AARI
- Merit Bread
- Akhuwat
- Rotri Club Faisalabad
- Kisan Ghee and Cooking Oil
- Food Items stalls (Shawarma, GolGappay, Chips)
- Garments
- Lights
- Chemicals

## Sponsors and Media Partners

The sponsors and media partners of 1st ICAB 2016 were the following:

1. Higher Education Commission (HEC), Pakistan
2. Pakistan Science Foundation (PSF)
3. Akhuwat, Pakistan
4. Mian Scientific Stores, Lahore
5. Worldwide Scientific Lahore
6. Rays Technologies
7. Shalimar Scientific Glass Store
8. Kisan Ghee and Cooking Oil



## Poster Presentation- Cash Prize Distribution Ceremony

Another center of attraction of the events was the poster presentation session which was held on the 31st March, 2016 at Akhuwat-FIRST, offering an opportunity to mostly young scientists to present their research endeavors through the conventional printed posters besides the e-posters. Those prospective researchers who could physically ensure their presence in the conference were offered the option to deliver e-posters, which were facilitated through online interactive session between the poster presenter and the attendees. The poster presenters put forward an array of over 70 proficiently prepared posters which were very well received and garnered a lot of attention and discussion by the participants of the events.

To ensure that the participants do not miss out the poster sessions, two hours were allotted on second day to the poster sessions after the lectures. Organizing team of ICAB-2016 held a meticulous poster session of 70 posters.

The poster presenters displayed their skillfully created and enthusiastically organized posters, which attracted a large number of delegates to acknowledge the efforts of the presenters. A panel of judges shouldered the responsibility to assess all the posters very critically, finally awarding the best poster which geared up immense interest amongst the participants.

The Organizers acknowledged the efforts of the poster presenters by rewarding three best posters for conference with monetary prizes. The honorable chief guests Honorable Minister of Health, Saira Afzal Tarar and Honorable Minister of Education, Muhammad Baleegh Ur Rehman distributed the prizes.



## Concluding ceremony of 1<sup>st</sup> ICAB 2016

In the concluding session, Federal minister of Education, Muhammad Baleegh Ur Rehman and Federal Minister of Health, Saira Afzal Tarar participated as chief guests. The honorable ministers visited the area of poster session and campus of Akhuwat-FIRST. Dr. Naureen Aziz Qureshi appreciated the organizing team of conference. She said that more than one thousand delegates attended the conference and it happens due to symbolic collaboration of both the partners. Dr. Robert William Briddon summarized all the sessions and importance of this conference. Chairman Akhuwat, Dr. Muhammad Amjad Saqib shared his vision for education with the audience. He said that this university is open for all the talented and deserving students. If we can provide interest free loans then we can also provide free education. We will also encourage entrepreneurship. Dr. Amjad Saqib and Dr. Naureen Aziz Qureshi said that they will make this conference an annual event in March every year. Dr. Muhammad Ashraf, Chairman PSF, said that he will call this event a congress instead of conference. He appreciated the efforts of Dr. Muhammad Amjad Saqib, Dr. Naureen Aziz Qureshi and the organizing team for their tremendous efforts. He also discussed the idea of Science Museum and Science City with the audience. Some people started their work on this idea around 15 years ago but could not get completed due to unknown circumstances. Dr. Shahid Mansoor also appreciated this event and said that we should move towards the entrepreneurship. He also

requested the government and competent authorities to establish the fund to work on innovative ideas. Dr. Ehsanul Haq also discussed the idea of Science City and requested all the participants to work on it. Honorable Minister of Health, Saira Afzal Tarar said that our country is great and we can become top nation of the world by improving our education and health facilities. Honorable Minister of Education, Mr. Muhammad Baleegh Ur Rehman said that more than 70% seats in universities are occupied by female students and most of them don't work after completion of study. We should change this trend. We should also focus on the study of science subjects. Group Head of Akhuwat Education Services/ Project Director Akhuwat University, Colleges and Schools, Syed Hussain Haider paid special gratitude to honorable ministers, vice chancellors and sponsors for their participation and support. He also appreciated all the participants for their contribution, presentations and scientific views shared in this conference. At the end, he acknowledged the organizing team of conference especially Akhuwat-FIRST for their untiring efforts to make this event successful. GCWUF and Akhuwat-FIRST have started this trend to hold a series of conferences each year in Biotechnology, which has been appreciated on all forums. This conference was unique in the context of public and private sector collaboration. The conference drew a curtain on the 31st of March 2016 to be raised again next year in March 2017 (Inshallah).



## Organizing team receiving souvenirs from honorable chief guests



## Organizing team receiving souvenirs from honorable chief guests



First International Conference on "Advancements in Biotechnology" organized by Akhuwat-FIRST and GCWUF  
 Engr. Muhammad Baligh ur Rehman, Federal Minister Education, Mrs. Saira Afzal Tarar, Federal Minister Health  
 Dr. Muhammad Amjad Saqib, Chairman Akhuwat with other senior officials of Akhuwat-FIRST



Visit of Federal Minister of Education, Mr. Baligh ur Rehman to Akhuwat-FIRST



Akhuwat-FIRST boys hostel  
under construction

# Akhuwat-FIRST



(Proposed design of Akhuwat-FIRST Hostel)  
(We request for the support of the generous people of Pakistan)

## Support Akhuwat Education Services



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