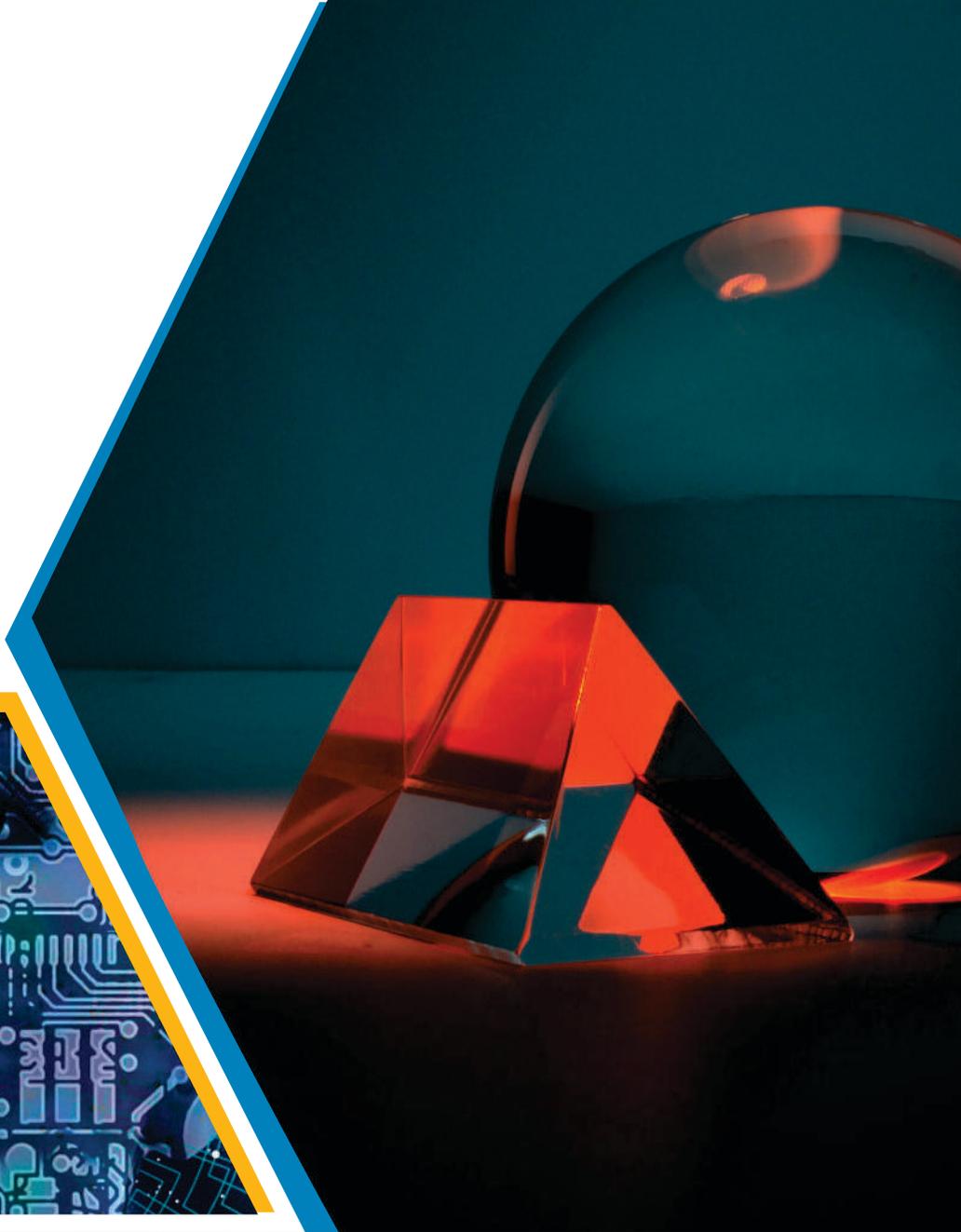




**DECENT WORK AND
ECONOMIC GROWTH**



FACULTY OF BASIC SCIENCES PROSPECTUS



BUIITEMS

QUALITY & EXCELLENCE
IN EDUCATION



BUIITEMS
Quality & Excellence in Education



BUITEMS

Quality & Excellence in Education

Vision

Faculty of Arts and Basic Sciences aspires to achieve excellence in providing quality education for all degree programs.

Mission

Our mission is to provide the students of various professions and disciplines sound knowledge of basic sciences, make them socially responsible citizens and inculcate in them inquisitiveness and passion for research.

Objectives

- To cater broad range of subjects for the choice of students
- To encourage students to explore a wide area of academic interests and to acquire diverse research skills.

Welcome to BUITEMS

“

Standing as the prestigious and world class university to design the future beginning today with academic excellence defined by its quality and rigour in education and applied research through its talented youth and learned academicians.

”

No .4

In the Higher Education Commission ranking for Computer Science and Information Technology.

Top International Recognitions

BUITEMS is the member of 6 reputed international networks and associations.

100+

Open days and events round the year.

A World class university in Balochistan

The Express Tribune, May 2015.

80%

Job placement ratio within the first year after graduation.

1 of every 3

Students receive financial assistance.

BUITEMS events

Come to BUITEMS on an event day to explore the university yourself and see who we are and what we do.

<http://www.buitms.edu.pk>



Welcome

Vice Chancellor's Message

I have great pleasure in welcoming you to the BUIEMS. We pride ourselves on being a university for delivering quality education that is supported by excellent research faculty and infrastructure in the region. We aim to produce new knowledge through research and practice that has local, regional and global relevance and impact. At BUIEMS we mix learning' with an emphasis on real-world experience and 'Future of Work' outlook. For industry our laboratories are equipped with the latest technologies. For businesses and entities our academic faculty offer a range of high-quality research, consulting and short courses. Our class room teaching is informed by research and global practices. We support student learning with guest lectures, workshops, training courses, career seminars and employability skills. Therefore, our graduates possess global vision and are able to provide solutions for business, social and industry problems. We offer excellent national level sport facilities, high quality accommodation and transport services. Our proximity to the Quetta Airport enhances our connections and access to national and global opportunities. Under the guidance of the Honorable Governor of Balochistan as the Chancellor, we take pride in delivering support and guidance to enable our students to become successful professionals and global citizens.

I look forward to working with you.

Khalid Hafeez PhD

Professor of AI & Digital Transformation

Fellow Royal Society of Arts (RSA-UK), Fellow Chartered Management Institute (CMI-UK), Senior Fellow Higher Education Academy (SFHEA -UK), Certified Six Sigma Master Black Belt (SSMBB-US), Certified European Foundation of Quality Management (EFQM-Brussels- Belgium), Certified Lean systems and Process Manager (Herrington Institute - US), Certified Project Manager (Herrington Institute -US), Certified Natural Linguistic Programming (NLP-UK)

CONTENTS

1. Introduction
2. Deans Message
3. Department of Chemistry
4. Department of Physics
5. Department of Mathematical Sciences



02

Page No.5

03

Page No.6



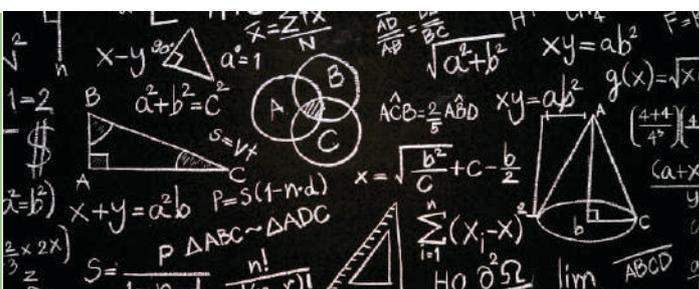
04

Page No.33



05

Page No.56



BUIITEMS Explained

Balochistan University of Information Technology, Engineering and Management Sciences (BUIITEMS) has given a new vision and a distinct meaning to education. Its guidelines for academic achievements are comparable to those of the most renowned institutions of the world



The BUIITEMS Advantage: Wide range of programs

We are committed to providing quality education with a focus on research and to equipping students with the art of living as productive members of society, contributing to the socio-economic uplift of Pakistan in general, and Baluchistan in particular. Before getting started let's explain the difference.

BUIITEMS transformative education provides a wide range of academic programs spanning comprehensive areas of engineering, sciences, and arts. It also provides multidisciplinary and cross-faculty learning opportunities. BUIITEMS transformative education provides a wide range of academic programs spanning comprehensive areas of engineering, sciences, and arts. It also provides multidisciplinary and cross-faculty learning opportunities.

Flexibility and exploration

BUIITEMS offers a diverse and comprehensive choice of courses in six faculties with a range of undergraduate and graduate programs. We motivate our students to explore their interests, discover their talents and pursue their passions, and create their own BUIITEMS experience



BUITEMS Structure who does what?

BUITEMS quest for academic excellence is based on five fundamental pillars; the students, the faculty, the curriculum, the learning environment, and the civil society we serve. We stand committed that in our academic offering we shall not only follow the standards, we shall also set new “Records of Excellence.”



The University

There are six faculties and each faculty is comprised of multiple departments. The Faculty of Basic Sciences (FBS) has three departments: Department of Chemistry, Department of Physics and Department of Mathematical Sciences. The university through the office of the Registrar, Controller of Examinations and the Directorates helps in maintaining a conducive environment for teaching and learning at BUITEMS.



The Facilities

The Faculty and its Departments are responsible to:

- Determine the curriculum.
- Organize lectures, seminars, practicals,, and projects.
- Set and mark examinations
- Maintain academic excellence and professionalism.
- Provide an environment conducive to learning, teaching, academic inquiry and innovation.

What are we looking for?

We are looking for individuals who can make it to be great future contributors in the fields of Science, Engineering, and Humanities. We strongly encourage all applicants to choose fields of study that truly interest them. With the brilliant faculty and students with their best interest in a given field, we are confident that we will make great Scientists and Engineers out of our students. We are looking for students who:

- Have a strong academic ability and potential
- Have a strong interest in the fields they are applying for
- Will benefit from and grow in the BUISTEMS environment

Academic ability and potential

We are looking for students with a compelling academic background and potential. This should be reflected in all the past qualifications and the entry test. BUISTEMS expects its students to excel further in terms of academic performance. Therefore, you should be aiming at excellent a cumulative grade point average (CGPA) throughout your degree program. According to our experts, keeping up closely with all the instruction and independent study throughout the semester helps you perform brilliantly.

Interest in your Field of study

At BUISTEMS, we are looking for students who are truly excited with the field of study they have chosen and are not just interested in the degree at the end. We firmly believe that the academic excellence can only be achieved when the student is stimulated by his or her field of study; we believe that learning comes through stimulation and interest. Therefore, we strongly advise you to think carefully when you are choosing your field of study. You should not choose a field of study just because you think you ought to do, think about a field of study you are most excited and inspired about as you will be studying the field for the next few years.

Academic ability and potential

We are looking for students who are self motivated and who can think critically. We are looking for students who can understand the model of the higher learning where a student is required to study and work independently in addition to classroom learning. If you believe you can excel in higher learning you need to be self-motivated, self-disciplined and have a desire to learn the breadths and depths of knowledge in your field of study.

Applying to BUITEMS

Four Simple Steps

If you want to apply to BUITEMS, Here are the four simple steps

1. Major (or field of study)



You will be studying a particular field (also called major) for several years. Therefore, you should make sure that you choose a field that interests and excites you.

2. Apply

Fill out the admission form available by visiting admissions.buitms.edu.pk or the admissions office at campus. Submit the form online or at the admissions office along with the requisite documents and bank receipt of admission processing fee.



3. Test

Eligible students are invited to the NTS admissions test. The test is conducted on the NTS standard test for a given major.



4. Admission Offer

Admission will be offered based on the merit calculated from the marks scored in metric, intermediate and the NTS admission test.



International students

We, at BUIITEMS, believe that diversity brings innovation. We highly encourage international students to apply for admission at BUIITEMS. Many international students from different parts of the world are enrolled in various study programs at BUIITEMS. The eligibility requirements for international applicants are the same as for the applicants from within Pakistan. An applicant for transfer from a local or foreign institution is required to have passed the BUIITEMS admission test by securing equal or more marks than the minimum merit of the program in which the student seeks admission. However, acceptance of request for transfer will depend on availability of seats, and the quality of academic work already done by the applicant. As a BUIITEMS student, you will be part of one of the nation's largest engineering, sciences and art schools. BUIITEMS is a community known for its excellence - a student body of more than 8,000 faculty from the world's leading institutions. You are advised to look up for full details on individual field of study, credit hours and research aspects so as to get the maximum out of your chosen field of study.



How do I apply?

You can apply through online BUIITEMS admissions system. Download and print the application form. Attach all relevant documents and the receipt of application processing fee with the application. Send the complete application to the BUIITEMS admissions office, make sure that the hard copy of your application reaches the admission office before the closing date.

What are the entry requirements?

Entry requirements for undergraduate and graduate programs are available in the Disciplines and Departments section of this prospectus.

Supporting documents

1. Attested copy of Secondary School Certificate
2. Attested copy of Higher Secondary School Certificate
3. Attested copy of the Applicant's CNIC / B-form
4. Attested copy of Local/Domicile
5. Bank draft/pay order/receipt of cash payment (admission processing fee)
6. Six recent photographs (passport size)
7. Attested copy of CNIC of the applicant's father/guardian
8. Attested copy of Character Certificate from the last institute attended

What are the payment options?

Online application processing fee is Rs. 3500 for national applicants and US \$75 for foreign applicants. Whereas fee for manual application processing is Rs. 3500. Please note that these amounts are non-refundable and must be deposited on or before the last date of the application submission.

You can avail one of the following options to deposit the application processing fee:

- Bank draft / pay order drawn in favor of Registrar BUIITEMS, Quetta.
- Cash deposited in Account Number: 23587000000201, Habib Bank Limited, BUIITEMS University branch, Quetta, Pakistan.

Where to send the documents?

Post your supporting documents and hardcopy of the Admission Form along with bank draft / pay order (admission processing fee) on the following address:

*Admissions Office,
Balochistan University of Information Technology, Engineering and
Management Sciences,
Takatu Campus, Airport Road, Baleli. Quetta.
UAN: +92 81 111-717-111
Other lines: +92 81 2880560 / 2880136 / 2880140 / 2880386 /
2880432
/2880527 / 2881076 / 2880511
Extensions: 163, 216, 217*

What next?

Applicants will be called to take the admission test. The admit card for the test will be issued. In case of non-receipt of admit card, the admission office may be contacted. Please note that only candidates with complete applications will be notified. Candidate without the admit card will not be allowed to take the test/interview.

Frequently Asked Questions



What is the duration of a program at BUIITEMS?

The duration of BS programs is four years, equally divided into eight semesters. However, the B. Arch program is spread over five years (ten semesters). Each semester is 18 weeks long, 16 weeks for teaching, and two weeks for the conduct of midterm and final examinations. The duration for completion of the MS program is 2 years from the date of enrolment into the MS program.

Can I freeze a semester?

Freezing is not allowed in the first semester of a program. A student shall be allowed to apply for freezing of at most two semesters in his / her entire program of study, after the first semester.

What are the different financial assistance options at BUIITEMS?

The BUIITEMS Fee Concession & Scholarship Policy has

the following aspects:

- Merit scholarship (available after the first semester)
- Work and study program
- Fee concession for needy students
- Fee concession for siblings
- Fee concession for dependants of BUIITEMS employees
- Fee in installments
- USAID need-based scholarship

For more information related to financial assistance you can contact the university advancement and financial assistance office. For undergraduate and MS programs a minimum of 2.0 and 2.5 CGPA respectively, is required to pass out.

What is a probation period?

Whenever a student's CGPA falls between 1.0 and 2.0 he / she shall be put on the first probation for the next Semester

- If the student fails to raise the CGPA to 2.0 or above, he/ she shall be placed on the probation for the next semester.
- If the student who was earlier on second probation fails to raise CGPA to 2.0 or above, he/she shall be placed on the last probation.
- If the student fails to raise CGPA to 2.0 or above in the last probation, he / she shall be dropped from the university rolls.

Can I change my program of study after admission?

Change of academic program is generally not encouraged. However, it may be allowed on the recommendation of the Chairpersons concerned and approval of the Dean(s), within the first two weeks of the first semester, subject to the fulfillment of eligibility criterion and availability of the seat. Merit of the student has to be above the merit of the last student admitted into the program to which transfer is desired.

What is the limit of courses in a single semester?

A student is required to take 15-18 credit hours course work per regular semester. However the Chairperson of the department may allow a maximum of 21 credit hour course work in one semester on the approval of the Dean.



Student Life:

More than just studying

Life at BUISTEMS is a blend of academic and co-curricular endeavors. As members of the BUISTEMS family, the student, faculty and staff enjoy an exciting, vibrant, and, colourful life at BUISTEMS. From high-class academic lectures and laboratory experiments, to exciting sports, art events, and service projects, there are always great things happening on campus.

The BUISTEMS Advantage: Work hard and have fun

20 +

Student clubs and societies to choose from.

World class sports facilities

BUISTEMS sports complex and stadiums are among the best in the country.

Arts and culture

Non-stop events complemented with excellent venues.



Events and feasts

From the one-of-a-kind, cultural festivals on campus to accomplished student performances in theatre, arts, and culture, student affairs plays a leading role in the life at BUISTEMS. Student affairs comprise more than twenty student clubs and organizations that continuously provide fuel for constructive social life at BUISTEMS. The Student Affairs, on average, virtually conducts at least one event each day on campus. The scale of the events varies from attendance of 50 participants to thousands of participants and spectators in the flagship events like the Spring Festival, Culture Feast, and the Home Coming. The preparations for the events and the events days make an amazing atmosphere on the campus where every student and staff seems to be working with an exceptional bond. The sense of ownership of the institution among the students and staff is exemplary at BUISTEMS. The quarterly newsletter and Markhor magazine provide coverage of the events and developments on campus.

The Olympiad

The annual Olympiad marks the culmination of athletics and sports at BUISTEMS. The Olympiad is a week of non-stop sports and athletics competitions in more than fifteen sports categories with over one thousand athletes participating from among the staff and students. The Olympiad is witnessed by thousands of spectators and sports fans from within campus and the city.

Community service

Another important aspect of the life of the BUISTEMS family has been community involvement and service. BUISTEMS family members have a very special motivation for social service and social contribution to society. The students and staff are contributing to the elementary education for child labor under the Free Citizen Schools. The organization has been formed by the staff and students of BUISTEMS. Through the organization, the students and staff of BUISTEMS have been directly educating young children who are laboring to meet the finances of their families. The children are educated on basic reading, writing in Urdu and English, and basic math and science. The students and staff also visit special community schools on weekends in different parts of the city and educate students using modern instruction methods. The students and staff are also helping the poor and needy citizens who are in need of support for their health problems. BUISTEMS blood donation drives have earned good recognition in the province. A large number of citizens have been helped with BUISTEMS blood donations. BUISTEMS has also been helping the citizens of the province in their career planning and providing counseling on scholarships. The counseling and training are organized for the young graduates of different universities in the province.



Get ahead of the game

Sports

Whether you're a world-class athlete or new to exercise, we have the facilities and expertise to keep you motivated. From the fun to the competition side of the sport, we love it all at BUITEMS. We have more than 3,000 members of our sports facilities and approximately 1,000 students participate in different sports tournaments inside and outside the province. With so many activities to try out and plenty of post-exertion socializing opportunities available, you can get fit and have fun at the same time. If you are a talented athlete in training, we offer a range of services to support you as well as sports bursaries and funds for team participation in the inter-university championships and tournaments.

Facilities

BUITEMS boasts of providing one of the best sports facilities in the nation. Sports and athletics form one of the core features of life at BUITEMS. The newly constructed sports complex is a jewel of recreation facilities at BUITEMS. The Sports Complex provides venues and gear for a range of sports including basketball, handball, badminton, table tennis, and volleyball. A Fully equipped gym and fitness center is part of the Sports Complex that houses the finest fitness equipment to keep you agile and healthy. The world-class cricket stadium at BUITEMS is a commendable facility for cricket lovers. The stadium is operated with the support of the Pakistan Cricket Board (PCB) and regular regional tournaments are held at the stadium. The football ground at BUITEMS is no less a treat for football fans and players. The lush green ground remains one of the busiest sporting facilities on campus around the year. In addition, a number of separate facilities for basketball and other sports are located in different parts of the campus. Get registered and enjoy the excellent facilities to cope with your tedious work and study routine

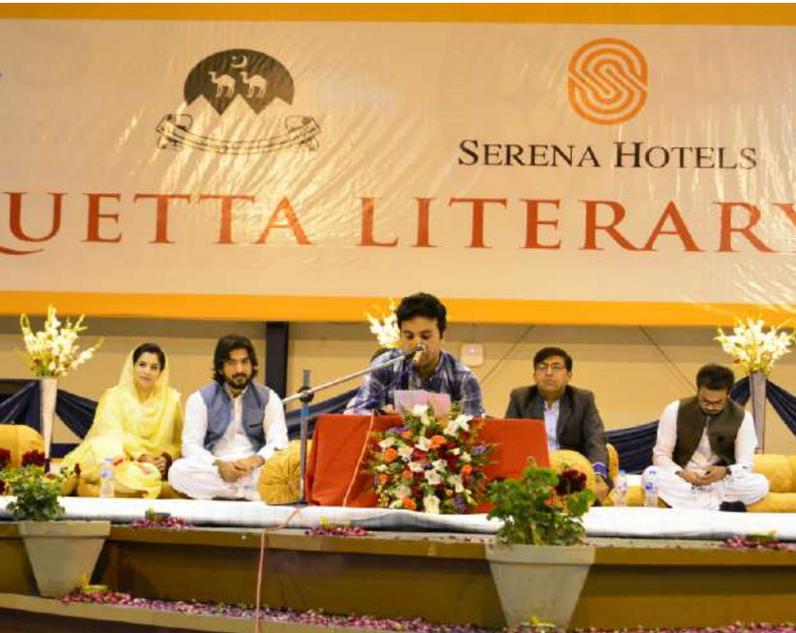
The University also has:

- Multi-purpose sports complex
- High class gym
- PCB standard cricket stadium
- High class football ground



In and around BUIITEMS

BUIITEMS is located in Quetta, also called the fruit basket of Pakistan. Quetta is one of the most beautiful cities of Pakistan distinguished by the unique backdrop of mountains, beautiful lakes and fruit orchards in the outskirts.



The city is famous for its amazing weather and beautiful fruit orchards in and around. Quetta is surrounded by small valleys and hills. The juniper forest in Ziarat, located at about 125 kilometers north of Quetta, is another natural distinction of being the second largest juniper forest in the world. Located in Pakistan's most attractive destination, BUIITEMS has loads to offer you as a student.

The World in BUIITEMS

With students and faculty from different cities around Pakistan and the world, BUIITEMS brings a diverse world to the campus. With such a unique blend of people, life at the university is never dull. Apart from the fervent exchange of academic ideas, a host of programs and activities are offered. An event like the spring Olympiad and cultural show allow students to showcase their own country's culture and share the festive mood and vibes with the BUIITEMS community.

Campus tours

A frequent sight at BUIITEMS is that of young school children escorted by a guide, and the group walks across different facilities on campus. Young school children from different schools in the province are invited to the campus for university life orientation. Young school children are given an orientation on the variety of science, engineering, and arts disciplines offered at the university. The children spend a day at the campus and witness university life. The unique experience at BUIITEMS for school children is aimed at helping the students plan their careers and future early in their lives. The exercise will help produce professionals in the province and in the country who will truly excel in their fields of specialization.

Restaurants and Cafeterias

Home is where the heart is. From food carts to fine dining, the University is full of places with good eats, drinks and treats. The tea and food houses of BUIITEMS serve the best. Retail dining options include Road Stoves, Hot & Chili, Gosha-e-Fikr-o-Nosh, Life café, and City café. BUIITEMS dining recognizes the great power and importance of food. Dining rooms are gathering places, and breaking bread together helps create a sense of community and comfort. You can easily drop in the cafes and put an order of your choice. You can also join the freewheeling academic debates, poetry recitation and literary repartee in the cafes.

Entertainment

At BUIITEMS, we believe in fun every day, every milestone, every challenge, and every achievement around the year. There are many collaborative competitions and celebrations organized to make you feel being part of the family. Each day on campus there is an event engaging the BUIITEMS family and visitors from outside. The scale of the events varies from attendance of a small group of participants to thousands of participants and spectators in the flagship events like the Spring Festival, Culture Fest, Olympiad and the Home Coming. The preparations for the events and the events days make an amazing atmosphere in the campus where every student and staff seems to be working with an exceptional bond.

Airport and highway

BUIITEMS is located in Quetta, also called the fruit basket of Pakistan. Quetta is one of the most beautiful cities in Pakistan distinguished by the unique backdrop of mountains, beautiful lakes, and fruit orchards on the outskirts. The city is famous for its amazing weather and beautiful fruit orchards in and around. Quetta is surrounded by small valleys and hills. The juniper forest in Ziarat, located at about 125 kilometers north of Quetta, is another natural distinction of being the second largest juniper forest in the world. Located in Pakistan's most attractive destination, BUIITEMS has loads to offer you as a student.





Going Places with BUISTEMS

In an interconnected world, graduates need to stand out as culturally sensitive, well-informed and articulate individuals who can learn and think for themselves. They will also need to keep abreast with global developments in order to meet its challenges. Here in BUISTEMS we encourage, support and assist our students to participate in many national and international conferences, competitions, and study tours. BUISTEMS effectively helps in fostering national and international relationships across cultures and borders through its programs.

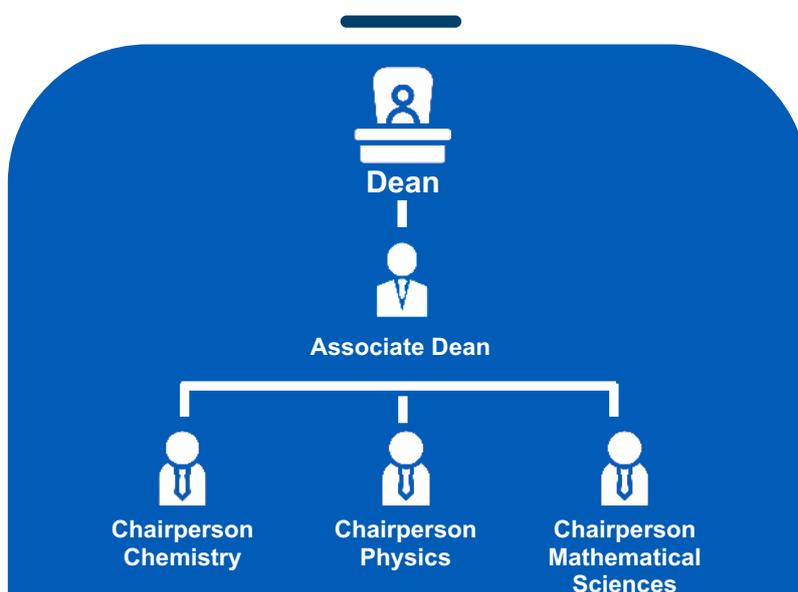
Attractions in and outside the city

Hanna Lake, which nestles in the hills ten kilometres east of the city, is a turquoise body of water that contrasts markedly with the bare surrounding hills. It is an attractive destination for vacationers, with facilities for boat hire. A lakeside restaurant is crowded with hikers and campers during holiday periods. The Hazarganji Chiltan National Park, 20 km south-west of Quetta, is a protected park area. In the folds of the mountains, according to legend, there are over a thousand buried treasures, reminders of the passage over the ages of great armies including the Bactrians, the Scythians, the Muslims, and the Mongols. Pir Ghaib is a waterfall and picnic spot located 70 km from the Quetta City in historic Bolan valley. Kharkhasa is located 10 km west of Quetta in a 16 km long narrow valley that contains a variety of flora and fauna species. The Chiltan Hill Viewpoint in the park provides a panoramic view of the city. A visit to the nearby cities of Kirani and Ziarat are popular scenic places for tourists travelling to and from Quetta. The Quetta Geological Museum, located on Sariab Road has a collection of rocks and fossils. The Command and Staff College Museum is a museum dedicated to British military history. It is housed in the former bungalow of Field Marshal Bernard Montgomery. The Quetta Archaeological Museum, located on Wafa Road has a collection of rare antique guns, swords, manuscripts and a display of Stone Age tools, prehistoric pottery and articles found in Mehrgarh. There are also coins, manuscripts and photos of Quetta before the 1935 earthquake. The Balochistan Arts Council Library houses arts and crafts from the province. If you want to explore further a field and looking for somewhere to relax and escape city buss, Hanna lake, Urak valley, holiday stations such as Ziarat and Pishin are home for fresh fruits and natural forests and are famous outing spots around Quetta.

The Faculty of Basic Sciences (FBS) was established in September 2020 after the bifurcation of former Faculty of Arts and Basic Sciences (FABS). The Faculty of Basic Sciences consists of three (03) Departments; viz, Department of Chemistry, Department of Physics and Department of Mathematical Sciences. These subjects of Basic Sciences are the precursor of highly competitive profession including medicines, engineering and computer. We at FBS offer a very broad range of courses and programs of study. All the three departments offer undergraduate degree program in their respective disciplines. The Department of Chemistry and Physics also offer MS and PhD degree programs, while the Department of Mathematical Sciences is offering MS degree program as well. The documentation of the PhD program is in-progress. All the courses that are offered to students at different levels are designed to prepare not only skilled professionals in their respective disciplines but also good human beings. The primary focus of FBS is teaching and research. The Faculty of Basic Sciences is equipped with highly qualified faculty members. Many of them have earned their PhD degrees from abroad. The main focus of the faculty members is to develop new methodologies and excel in their respective area of expertise. The faculty members of Faculty of Basic Sciences have been successful in securing research grant from different national and international funding agencies.



The Organogram of Faculty of Basic Sciences



Dean's Message

Welcome to the Faculty of Basic Sciences (FBS) BUITEMS, I am sure that exploring this piece of information will lead you to love for being part of this faculty in any capacity. Faculty of basic sciences is one of the youngest faculty established in 2021 after bifurcation of former Faculty of Arts and Basic Sciences (FABS) into two faculties namely; Faculty of Basic Sciences (FBS) and Faculty of Social Sciences and Humanities (FSS &H). This faculty is comprised of three departments namely Chemistry, Physics and Mathematical Sciences. Obviously the subjects taught in these departments are of crucial importance which nourishes all disciplines of applied sciences. Therefore, FBS is outsourcing faculty almost in all other departments of university. As for as the scope of programs offered at FBS is concerned, it is tremendous, as no one could excel in any field of science without having a strong background of these subjects. Furthermore, right from academia in any walk of life you are dependent on knowledge comes under the domain of these subjects. Keeping in view the societal needs the university is putting greater emphasis in raising awareness and community services by teachers and students based on multi-dimensional activities such as classroom learning, seminars/symposia, advocacy campaigns and field events. The efforts are being made to promote inter-disciplinary research to acquire a better understanding of the cultural, socioeconomic issues and challenges. The commitment of the faculty is reflected in the vibrant intellectual culture of the university. Students at FBS start their respective degree programs by developing strong conceptual foundations across wide range of subjects before graduating to advanced, specialized courses. I feel honored and privileged to be associated with the Faculty of Basic Sciences. I am confident that our Faculty promises a rich, exciting and challenging learning experience and promising careers for our students. I invite you to explore the possibilities of enjoying this truly unique and rewarding academic experience at the Faculty of Basics Sciences, BUITEMS.

Prof.Dr Hamdullah Tareen
Dean



**DEPARTMENTS &
OFFERED COURSES**





Introduction

Chemistry is the science of change because everything in the universe is almost chemistry. Its involvement in providing energy, food, shelter, clothing, medicine, and other necessities to human beings makes it a versatile field of knowledge. The Department of Chemistry was established in 2015. In the beginning, the Department introduced four-year BS and two-year MS programs, and later, after a few years, a three-year Ph.D. program has been started. The Department designed separate courses for BS, MS, and PhD programs and offered various specialized courses under the framework of HEC rules and regulations. The Department offers various specializations such as Organic, Inorganic, Physical, Analytical, and Biochemistry. The Department has a dedicated and motivated team of highly qualified faculty members. It has thirteen highly qualified Ph.D. doctors and four MS-qualified lecturers and provides quality education to students. Most of the faculty members are in process of executing of research projects worth millions. Eventually, the department of chemistry is all set to capitalize on the strengths and potential of its skilled staff to achieve the set goals. After completing their degrees, the students will be able to apply their knowledge in their respective fields effectively as well as find jobs. The research interests of its faculty members range from synthesis, isolation, and characterization of natural products, to physical, polymer, and material chemistry but are not limited to that. The faculty and students published many research articles in renowned peer-reviewed national and international journals in their respective research fields



Vision

The Department of Chemistry endeavors to be a nationally / internationally-recognized model of education to compete with the ever-changing working environment. We graduate and prepare students to face the tough challenges of the 21st century in a diverse and changing world. We strive to contribute to a chemically literate society through teaching and research. The Department has a dedicated and motivated team of highly qualified faculty members. The department will distinguish itself by its strong cross-disciplinary collaborations both within and outside the university.

Mission

The department of Chemistry has dedicated expertise and resources to advancement in the area of physical sciences through research and education. The mission of the Department of Chemistry pledges itself to contribute to the advancement of science, especially in all areas of chemistry through its education and research. Our mission is to provide a creative, supportive, and attractive environment to our renowned faculty members and students centered learning. Our friendly environment achieved the objective to maintain the quality and excellence in education and research through frequent interaction between faculty and students, state-of-the-art research and teaching facilities, and the use of modern educational technology in both lecture and laboratory. The department aims to serve as a role model for students in ethical professional behavior. With a high standard of excellence in all areas, the graduates will be knowledgeable in chemistry and able to think critically, and will serve as citizens of the country

Scope

Chemistry, as the central science, plays a critical role in many areas, such as developing new materials (ceramics, high-tech polymers) in the field of sustainable resources, finding cures for diseases (invention of new drugs), understanding biological processes (mode of drug action, fertilization), and detailing the theoretical basis of natural phenomena. Chemistry is a field having an extensive scope in Pakistan as well as in the whole world without any doubt. Professionals in this field have the opportunity to work in multidisciplinary areas due to the overlap between chemistry and other sciences. Basically, this subject deals with how substances react with each other. A Bachelor of Science in Chemistry opens doors of employment. The doors of enormous quality jobs are open for Chemistry graduates such as Physical Chemist, Analytical Chemist, Lab Chemist, Production Chemist, Research and Development Manager, R & D Director, Biomedical Chemist, Industrial Research Scientist, etc. Various companies also prefer to hire such candidates, e.g., Pharmaceutical Companies, Agrochemical industries, Glass, Sugar, Cement, Ceramics, Beverages and Petro-Chemical industries, Plastic Manufacturing units, Chemical manufacturers, Textile Industries, Paper Industry, etc

Objectives

- To make the department excellence in teaching, curriculum activities, cutting-edge research and popularizing chemistry.
- To educate and equip the next generation of chemists with the capacity to solve real problems via advanced technologies of the modern era.
- To provide leadership that can lead to the economic transformation of the society.
- To equip the students to learn and use the cutting-edge technologies of the modern era.
- To transform the ideas of students into reality by using scientific approach and to develop interest in theoretical and experimental research skills.

Scheme of Studies

BS (Chemistry)

National Curriculum Revision Committees (NCRCS) Recommendations
Standardized format/scheme of studies for four-year integrated curricula
for bachelor degree in basic, social, natural and applied sciences

STRUCTURE

Sr.	Categories	No. of courses Min – Max	Credit Hours Min – Max	Percentage
1.	Compulsory Requirement (No Choice)	9 – 9	25 – 25	19.23
2.	General Courses to be chosen from other departments	7 – 8	21 – 24	17.30
3.	Discipline Specific Foundation Courses	9 – 10	30 – 33	24.23
4.	Major Courses including research project / Internship	11 – 13	36 – 42	30.0
5.	Electives within the major	4 – 4	12 – 12	9.23
	Total	40 – 44	124 – 136	100

Framework for Bachelor in Chemistry

- Total numbers of Credit hours 124-136 Cr hr
- Duration 4 years
- Semesters 8
- Semester duration 16:18 weeks
- Course Load per Semester 15-18 Cr hr
- Number of courses per semester 4-6 (not more than 3 lab/practical courses)

Compulsory Requirements (the student has no choice)	General courses to be chosen from other departments	Discipline Specific Foundation Courses	Major courses including research project/internship	Elective Courses Within the major
9 courses	7-8 courses	9-10 courses	11-13 courses	4 courses
25 Credit Hours	21-24 Credit Hours	30-33 Credit Hours	36-42 Credit Hours	12 Credit Hours

Scheme of Studies BS Chemistry

First Semester

1. Inorganic Chemistry-I
2. Computer Fundamentals
3. Mathematics-I
4. Pak. Studies
5. Reading and Writing Skills
6. Physics

Second Semester

1. Organic Chemistry-I
2. Environmental Chemistry
3. Food and Nutrition Chemistry
4. Mathematics-II
5. Islamic Studies/ Ethics
6. Academic Reading and Writing

Third Semester

1. Physical Chemistry-1
2. Basic Forensic Chemistry
3. Applied Chemistry
4. Introduction to Psychology
5. Statistics
6. Communication & Presentation Skills

Fourth Semester

1. Analytical Chemistry-I
2. Biochemistry-I
3. Soil Chemistry
4. Research Methods
5. Fuel Chemistry

Fifth Semester

1. Biochemistry-II
2. Inorganic Chemistry-II
3. Organic Chemistry-II
4. Physical Chemistry-II

Sixth Semester

1. Analytical Chemistry-II
2. Inorganic Chemistry-III
3. Organic Chemistry-III
4. Physical Chemistry-III

Seventh Semester

1. Special Course - I
2. Special Course - II
3. Special Course - III
4. Special Course - IV
5. Special Course - V
6. Special Lab-I

Eighth Semester

1. Special Course - VI
2. Special Course - VII
3. Special Course - VIII
4. Special Lab-II
5. Research Project

Note

Specialization will be offered in five disciplines, including: Organic Chemistry, Inorganic Chemistry, Physical Chemistry, Analytical Chemistry, and Biochemistry in seventh and eighth semesters of the 4-year BS-program.

* The courses of specialization will be offered with respect to the availability of the faculty/resources in respective discipline and number of students.

Scheme of Studies MS Chemistry

First Semester

Core Course - I
Core Course - II
Core Course - III
Elective Course - I

Second Semester

Core Course - IV
Core Course - V
Elective Course - II
Elective Course - III

Third Semester

Research Thesis

Fourth Semester

Research Thesis

Scheme of Studies Ph.D. Chemistry

First Semester

1. Elective I
2. Elective II
3. Elective III

Second Semester

1. Elective IV
2. Elective V
3. Elective VI

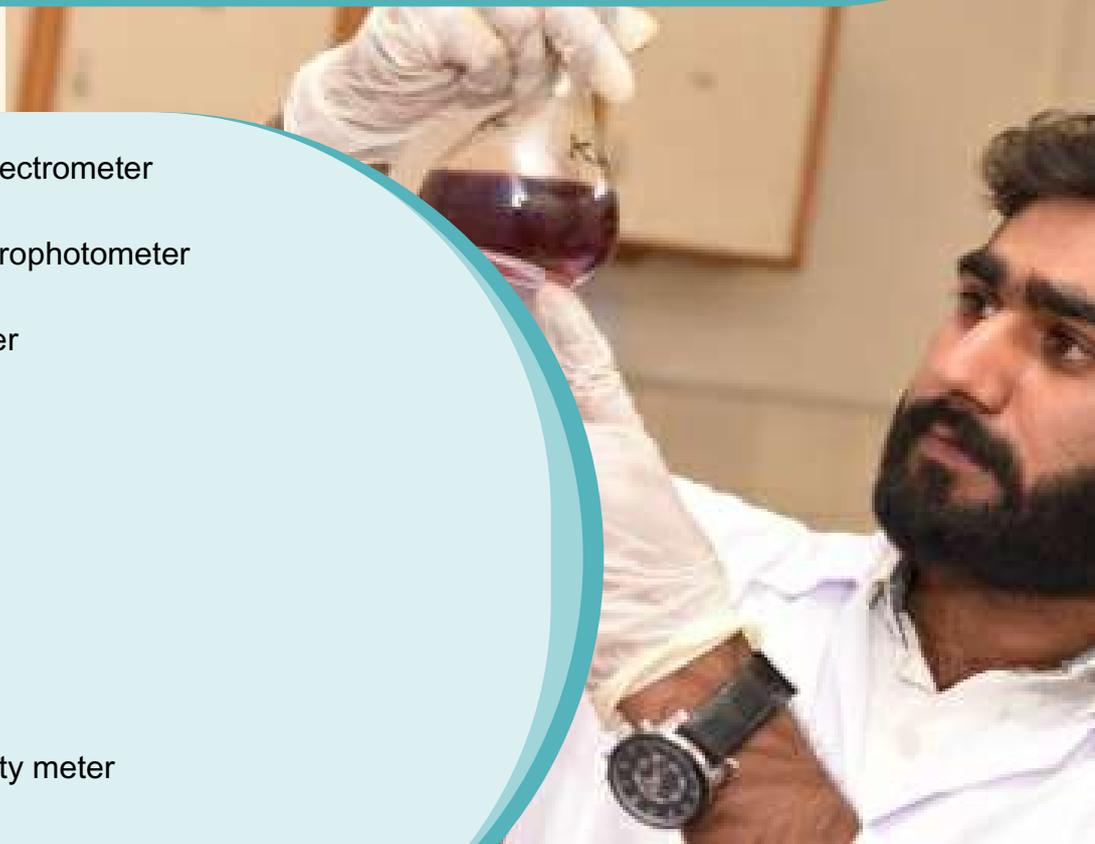
Doctoral Dissertation

Note

The PhD students shall not be offered the subjects which they have already studied during their MS / M.Phil classes.

Instruments Available in Chemistry Department

- Fluorescence Spectrometer
- UV-Visible Spectrophotometer
- Flame photometer
- Viscometer
- Stalagmometer
- Tensiometer
- Digital pH meter
- Digital conductivity meter
- Centrifuge
- Refractometer



Fluorometer



Microcentrifuge



Microcentrifuge



Ultrasonic Cleanser

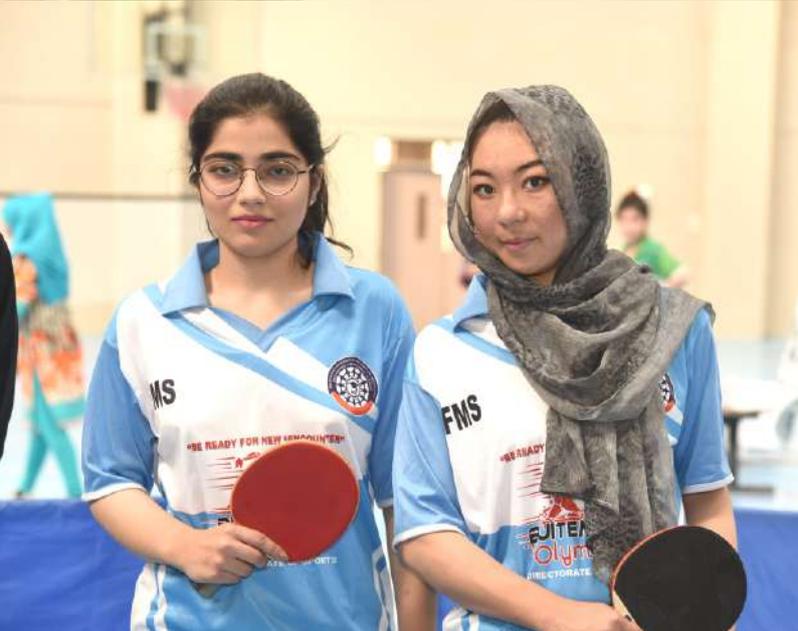
STUDENTS' CORNER

Who is awesome? My answer is: "BUIITEMS", which is a second, home for me, an integral part of my life. The time I have spent in this institute is just like a blink of an eye as they were so relaxing, and enjoyable along with learning. This institute provides the best platform by supporting like a family not only in studies but in finding and polishing talent. Every office of the university is always open to help the students if they are feeling any difficulty. I want to share my observations, as I am a deep observer. The First thing that makes BUIITEMS an extraordinary institute is the uniform, the great expression of discipline. Secondly, there are functional Directories of the different sectors like the Directorate of Students Affairs, which is doing a magnificent job in providing the platform for Co-Curricular Activities. I am personally the Official Host for any sort of event in the university and because of these opportunities; I hosted the mega Event of ISPR. Moreover, I am President of BUIITEMS LITERARY CLUB, which is responsible for all literature-related activities. On the other hand, the Directorate of Financial Aid is helping students who are having any type of financial barriers on their way to Quality Education. I am also a Scholarship awardee so I never faced any hardship while studying. BUIITEMS Facilitation center and discipline committee is always tended to solve these issues of students and to prevent any unwanted situation, there are many other such examples. Coming towards my own Department, Chemistry was never an easy subject for me but because of the hardworking and cooperative Faculty members I never faced any difficulty in my course and I have excellent performance in my studies it is a matter of Proud for me that my department has mostly qualified Ph.D. doctors who are making the department progress by leaps and bounds. It is important to mention that I came from a very backward and tribal area of Punjab which is 900+ Kilometers far from Quetta city, and I am very happy with my decision today a huge number of other providence students are in my department not only in my department but also in other departments. We can say that BUIITEMS is proudly nullifying the negative concept that prevailed about the Education of Balochistan. I can say that BUIITEMS is not only one of the best universities in Balochistan but in Pakistan. It is a blessing for the students who are in quest of Quality Education. BUIITEMS is playing a vital role in restoring the Hope of Youth. I would like to thank BUIITEMS, my teachers, my friends, and each one who is making this institute to be the best one. May Allah bless this institute. Keep shining BUIITEMS

Muhammad Abdullah Buzdar

BS Chemistry

Photo Gallery











FACULTY PROFILES



Prof. M. Naeem Shahwani

Position: Professor

Qualification: PhD University of Glasgow Scotland U.K.

Research Interest: Environmental stress on plant membranes, using physiological, biochemical and molecular / genetic approaches.



Dr. Muhammad Nawaz

Position: Associate Dean Faculty of Basic Sciences

Associate Professor, Department of Chemistry

Qualification: Ph.D., University of Rostock, Germany.

Postdoc, Korea University and University of Sao Paulo, Brazil.

Research Interests: Organic Synthesis, Catalysis, Natural Products Chemistry.



Dr. Hameeda Panezai

Position: Chairperson and Professor, Department of Chemistry.

Qualification: Ph.D., Beijing University of Technology, China.

Research Interests: synthesis of nano- and microporous materials and determination of surface properties and particular adsorption and absorption mechanisms of ordered porous materials for various applications in Environmental Remediation and Energy Storage.

HEC Approved Supervisor: Yes



Dr. Fouzia Abdul Sattar

Position: Professor

Qualification: Ph.D., HEJRIC, University of Karachi, Pakistan.

Postdocs, University of Karachi, University of Malaya, Malaysia, University of Bath, UK, Trinity College Dublin, Ireland, FJIRSM China.

Research Interests: Medicinal Chemistry, Catalysis, Natural Products and Organic synthesis.



Dr. Fayaz Ahmed

Position: Professor

Qualification: Ph.D., HEJRIC, University of Karachi, Pakistan.

Postdocs, University of Karachi, FJIRSM China.

Research Interests: Natural Products, Methodologies, Surface Functionalization and Organic Synthesis.



Dr. Gulfam Nasar

Position: Associate Professor

Qualification: Ph.D., University of Peshawar, Pakistan.

Research Interests: Nanomaterials, polymer composites and nanocomposites, ferrites, electro-magnetic materials, material science and nifty construction material.



Dr. Shazia Iqbal

Position: Associate Professor

Qualification: Ph.D., HEJRIC, University of Karachi, Pakistan.

Research Interests: Natural Product Chemistry, Environmental Microbiology and Environmental Chemistry



Dr. Mamoon Ur Rashid

Position: Associate Professor

Qualification: Ph.D., University of Peshawar, Pakistan

Research Interests: Medicinal Chemistry, Natural Products



Dr. Hamid Ullah

Position: Associate Professor

Qualification: Ph.D., State University of Campinas, Brazil.

Research Interests: Organic Synthesis, Natural product chemistry

HEC Approved Supervisor: Yes



Dr. Aziza Sarwar

Position: Assistant Professor

Qualification: Ph.D., University of Malaya, Malaysia.

Research Interests: Synthesis and Characterization of Azomethine Schiff bases, Transition metals-azomethine complexes, Lanthanide metals-azomethine complexes, luminescence studies, Hydrothermal synthesis of ligands and complexes



Dr. Muhammad Raheel

Position: Assistant Professor

Qualification: Ph.D., Quad-i-Azam University, Islamabad.

Research Interests: Physical Chemistry, Polymer Nanocomposites, Polymer Carbonization, Polymer Foams, Surface and Colloid Chemistry (Surfactant Drug / DNA Interactions).



Dr. Mujtaba Ellahi

Position: Assistant Professor

Qualification: Ph.D., University of Science and Technology, Beijing, China.

Research Interests: Nanochemistry, Nanotechnology

HEC Approved Supervisor: Yes



Dr. Zahoor Ullah

Position: Assistant Professor

Qualification: Ph.D., University Teknologi PETRONAS, Malaysia.

Research Interests: Ionic Liquids, Biofuel, Biomass, Renewable Energy, and Natural Products.

HEC Approved Supervisor: Yes



Dr. Mohibullah

Position: Assistant Professor

Qualification: Ph.D., Quaid-i-Azam University, Islamabad.

Research Interests: Polymers and Polymer composites, Synthesis of hybrid cryogels and their applications



Mr. Umair Ahmed (On Study Leave)

Position: Lecturer

Qualification: MS and M.Sc., University of Balochistan, Quetta.

Research Interests: Organic Synthesis and Drug Design, Molecular Biology, Genetic Engineering and Protein Synthesis.



Samra Farooq

Position: Lecturer

Qualification: M. Phil., Sardar Bahadur Khan Women's University, Quetta.

Research Interests: Organic Synthesis, Green Synthesis, Natural Products, Nanochemistry.

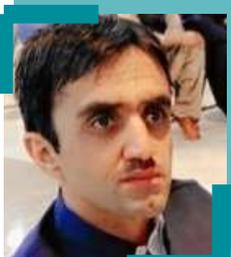


Ms Noornama

Position: Lecturer

Qualification: MS, BUIEMS, Quetta.

Research Interests: Biological and physico chemical analysis of water.

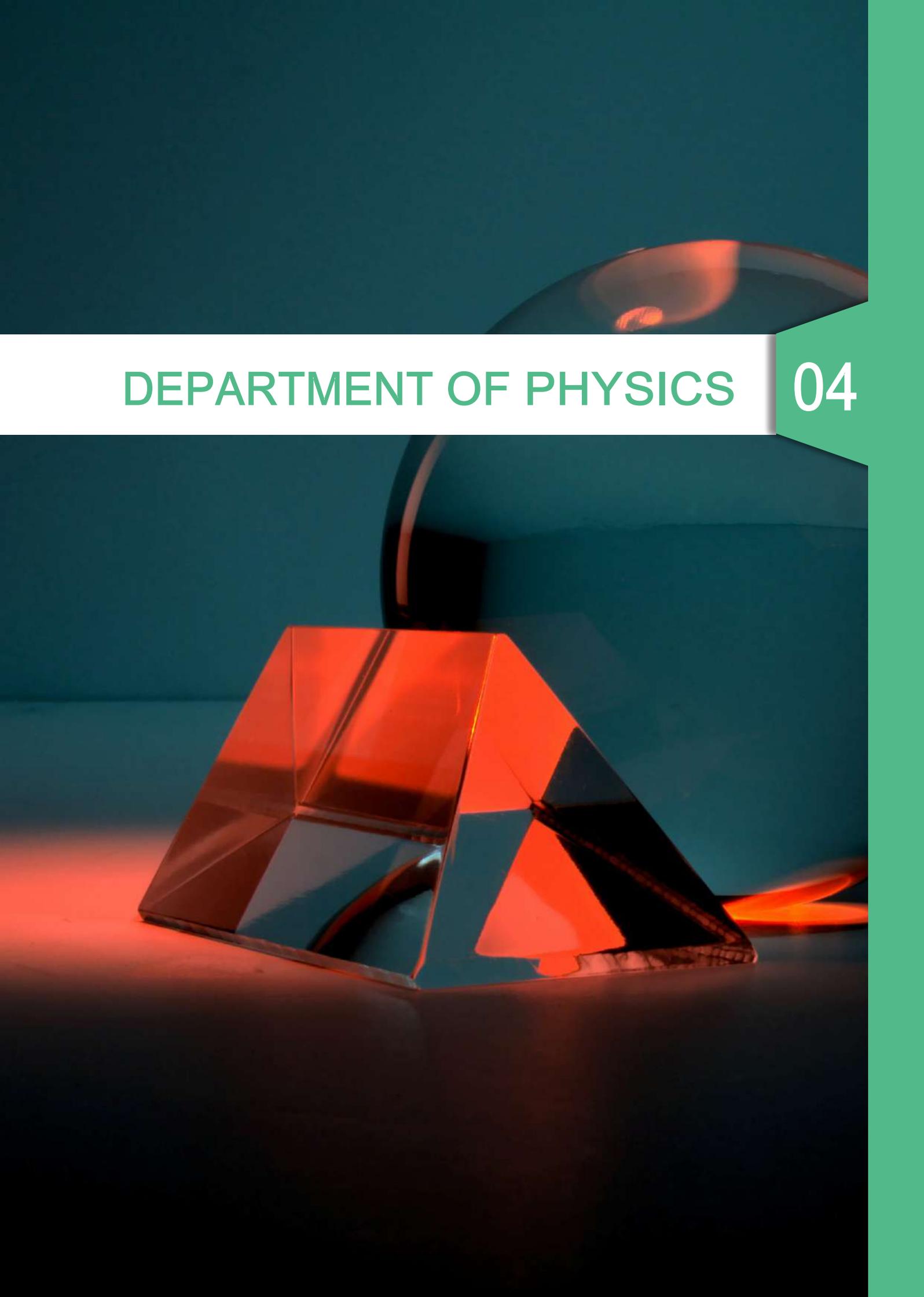


Mr. SaifulHanan

Position: Lecturer

Qualification: MS BUIEMS, Quetta.

Research Interests: Inorganic complex analysis.

A photograph of a glass prism on a table with a magnifying glass above it, set against a teal background with a red light source. The prism is illuminated from the side, creating a spectrum of colors. The magnifying glass is positioned to focus the light. The overall scene is lit with a mix of teal and red light, creating a dramatic effect.

DEPARTMENT OF PHYSICS

04

“Teaching is not a lost art,
but the regard for it is a lost tradition.”

– *Jacques Barzun*



Introduction

We aspire to produce competent physicists with critical thinking through observation and practice capable of resolving academic challenges in the field of Physics. Our department promotes research in Physics and emerging technologies. Also, impart knowledge through experiments and design of innovative techniques of investigation BS Physics and MS Semiconductor Physics were being offered since 2004 under the faculty of Information and communication technology. After the establishment of the Physics department under the faculty of Arts and Basic sciences in 2007, BS and MS Physics are offered in Physics Department. Now Ph.D. is also offered after the NOC from HEC in 2017. BUIITEMS is committed to extending its services in the education of physical science and emerging technologies in an environment conducive to imparting quality education and cutting-edge research. The department aims to excite students for exploring the universe and the desire to engage in lifelong learning. Now, study programs BS Physics, MS Physics, and Ph.D. Physics is being offered in the department. Physics Knowledge means to understand applied mathematics, chemistry, and Engineering certain aspects of Geology. The course offered in the Department of Physics at BUIITEMS according to the scheme of studies approved by the Higher Education Commission (HEC) of Pakistan so as to meet the national and international standards. The department of Physics offers 4 years (8 semesters) BS program, 2 years (4 semesters) MS program, and three years (6 semesters) Ph.D. program. The said programs combine curriculum and research that are high-quality, innovative, and intellectually challenging. From the 1st day Physics has been providing quality education to the students. We have a highly qualified faculty that includes 8 Ph.D. degree holders with vast teaching and research experience with international exposure in different fields. Our 8 faculty members are on study leave. The Department has specialties in different disciplines such as materials science, energy materials, magnetic materials, radiation physics, nuclear physics, plasma physics, atomic physics, quantum optic, and quantum physics. In the future, department is emerging to a school of physics where more fields of research are expected like astronomy, medical physics, silicon technology, Theoretical materials physics, and high energy physics. The Faculty Members of the Department have been successful in securing funding from different funding agencies, to establish high-tech labs in their respective area of expertise. Our mission is to build a favorable environment of learning for Scholars and achieve quality and excellence in Education and Research. To serve as a role model to students for sound and ethical professional behavior, the Department provides a solid base and training to the students which can be applied to pursuing higher studies. The Department has vast collaborations within the University, national and international levels as well as with industry. Department encourages faculty and students to participate in international conferences which may enhance their exposure to knowledge and expertise



Vision

The Department of Physics has set the ambition of leadership in the subject of pure and applied physics in the country and has a firm commitment to bringing its credibility at par with the technologically advanced countries. We aspire to produce competent physicists with critical thinking through observation and practice capable of resolving academic challenges in the field of Physics. The department lays great emphasis on the quality and mode of teaching and research supervision. As such the department ensures that its test and examinations are truly a measure of its student's analytical and critical abilities.

Mission

Physics Department at BUISTEMS is committed to extending its services in the education of physical science and emerging technologies in an environment conducive to imparting quality education and cutting-edge research. The department aims to excite students for exploring the universe and the desire to engage in lifelong learning. The department has endeavored to enhance the standard of teaching in Physics and the quantity and quality of research to meet the needs and demands of the country

Objectives

- To impart quality education in Physics
- To promote research in Physics and emerging technologies
- To impart knowledge through experiments and design innovative techniques of investigation
- To educate the students to fulfill the requirements of scientific organizations in the public and private sectors of the country
- To promote collaboration and inter disciplinary relationships with the teaching and research organizations in the country and abroad

Outcomes

The Department of Physics has produced a number of undergraduates/graduates who work in educational institutes and scientific organizations in the country and abroad. The Department of Physics has specialized students in Plasma Physics, Solid State Physics (experimental and theoretical), Quantum Optics, and Radiation Physics at MS and PhD level. The Department of Physics is having two research laboratories such as **Plasma Physics Laboratory (PPL)** and **Materials Research Laboratory (MRL)**, equipped with state of the art and modern research facilities.

Scheme of Studies

BS Physics

First Semester

1. Mechanics
2. Lab-I *
3. Calculus-I
4. Reading and writing skills
5. Pakistan Studies
6. Computer Fundamentals

Second Semester

1. Electricity and Magnetism-I
2. Heat and Thermodynamics
3. Lab-II **
4. Islamic Studies/ Ethics
5. Introduction to Geology
6. Calculus-II
7. Communication & Presentation Skills

Third Semester

1. Electricity and Magnetism-II
2. Waves and Oscillations
3. Modern Physics
4. Lab-III ***
5. Linear algebra
6. Academic reading & writing
7. Statistics-I

Fourth Semester

1. Optics
2. Lab-IV ****
3. Differential Equations
4. Introduction to Psychology
5. Statistics-II
6. Introduction to Chemistry
7. Programming Fundamentals

Fifth Semester

1. Mathematical Method of Physics -I
2. Electromagnetic Theory-I
3. Classical Mechanics
4. Basic electronic devices -I
5. Statistical Physics
6. Lab-V *

Sixth Semester

1. Mathematical Methods of Physics-II
2. Quantum Mechanics-I
3. Electromagnetic Theory-II
4. Atomic & Molecular Physics
5. Basic electronic devices -II
6. Lab-VI **

Seventh Semester

1. Quantum Mechanics-II
2. Solid State Physics-I
3. Lab-VII ***
4. Project Part-I
5. Elective I
6. Elective II

Eighth Semester

1. Solid State Physics-II
2. Nuclear Physics
3. Project Part-II
4. Elective III
5. Elective IV

Scheme of Studies MS Physics

First Semester

1. Mathematical Methods of Physics
2. Electrodynamics
3. Methods and Techniques of Experimental Physics
4. Quantum Mechanics-I

Second Semester

1. Elective I
2. Elective II
3. Elective III
4. Elective IV

Third Semester

Research Thesis

Fourth Semester

Research Thesis

Scheme of Studies PhD Physics

First Semester

1. Elective I
2. Elective II
3. Elective III

Second Semester

1. Elective IV
2. Elective V
3. Elective VI

Doctoral Dissertation

Note

The PhD students shall not be offered the subjects which they have already studied during their MS / M.Phil classes.

Facilities and student services

Seven teaching laboratories for BS, MS, and Phd students are available. The laboratories comprise of experiments related to theory courses and give students a practical understanding of physics. Department has a large collection of books, research reports, monograms, dissertations, and magazines in a spacious Seminar Library. A peaceful reading environment is provided to students, research scholars, and teachers. There is also the availability of multimedia and sound system for seminar presentations. Additionally, a large number of latest computers with the latest software are available. Students can use these computers as part of their course work, computational research work for performing calculations, mathematical modeling and graphical simulation, and writing research reports and thesis



Photo Gallery





FACULTY PROFILES



Prof. Dr. Hamdullah Khan Tareen

Position: Dean Faculty of Basic Sciences

Qualification: PhD, Quaid-i-Azam University Islamabad -Pakistan

Research Interest: Plasma Physics, material processing by plasma

HEC approved Supervisor: Yes



Prof. Dr. H. M. Noor ul Huda Khan Asghar

Position: Professor and Chairperson Physics

Qualification: PhD, Dalian University of Technology-China

Research Interest: Energy Materials, Magnetic Materials & Nanotechnology

HEC approved Supervisor: Yes



Prof. Dr. Syed Zaheer Abbas Gilani

Position: Professor

Qualification: PhD, The Islamia University of Bahawalpur -Pakistan

Research Interest: Materials Science, Magnetic Materials & Nanotechnology

HEC approved Supervisor: Yes



Dr. Nisar Ahmad

Position: Assistant Professor

Qualification: PhD, University Sains -Malaysia

Research Interest: Soil Physics, Radiation Physics

HEC approved Supervisor: Yes



Dr. Muhammad Naeem Khan

Position: Assistant Professor

Qualification: PhD, University of Brunei Darussalam in Energy Studies (Applied Physics)

Research Interest: Perovskite solar cells, Solid Oxide Fuel Cells

HEC approved Supervisor: Yes



Dr. Farooq

Position: Assistant Professor

Qualification: PhD, Dalian University of Technology P. R. China.

Research Interest: Theoretical physics, Quantum Opto-mechanics, Quantum Optics and Condense Matter

HEC approved Supervisor: Yes



Dr. Razaqat Hussain

Position: Assistant Professor

Qualification: PhD, COMSATS, Islamabad-Pakistan

Research Interest: Spintronic Materials, microfabrication, Nano spectroscopy



Muhammad Khalid

Position: Assistant Professor

Qualification: PhD in final Stage, Xi'an Jiaotong University- China

Research Interest: Spintronic Renewable energy, Optical and electrical modeling, photovoltaics



Dr. Sunila Bukhsh

Position: Assistant Professor

Qualification: PhD, USTC - China

Research Interest: Condensed matter physics, electronic structure calculation methods



Sumayya Abdul Wadood

Position: Lecturer

Qualification: MS, BUIITEMS – Pakistan

Research Interest: Material Science and Quantum dots



Niamat Ullah Khan

Position: Lecturer in Physics

Qualification: PhD in progress, Quaid-i-Azam University Islamabad – Pakistan

Research Interest: Theoretical high energy physics



Muhammad Akram Khan (On study leave)

Position: Lecturer

Qualification: PhD in progress, USA

Research Interest: Theoretical high energy physics and cosmology



Dr. Javed Rehman

Position: Lecturer

Qualification: PhD, Jilin University- China

Research Interest: Theoretical screening of 2D and 3D materials for metal ion batteries



Sameen Aslam (On study leave)

Position: Lecturer

Qualification: MS, BUIITEMS – Pakistan

Research Interest: Nanotechnology and magnetic materials



Mr. Muhammad Saad (On study leave)

Position: Lecturer

Qualification: MS, Quaid-i-Azam University Islamabad – Pakistan

Research Interest: Quantum magnetism, magnetic effects in 2D materials, transition metal oxides



Furhaj Ahmed Sheikh

Position: Lecturer

Qualification: MS, BUIITEMS – Pakistan

Research Interest: Material science, nanotechnology, magnetic materials & spinel-ferrites



Abdul Qayyum

Position: Lecturer

Qualification: MS, BUIITEMS – Pakistan

Research Interest: Quantum Optics, Quantum Optomechanics and Optomagnonics.

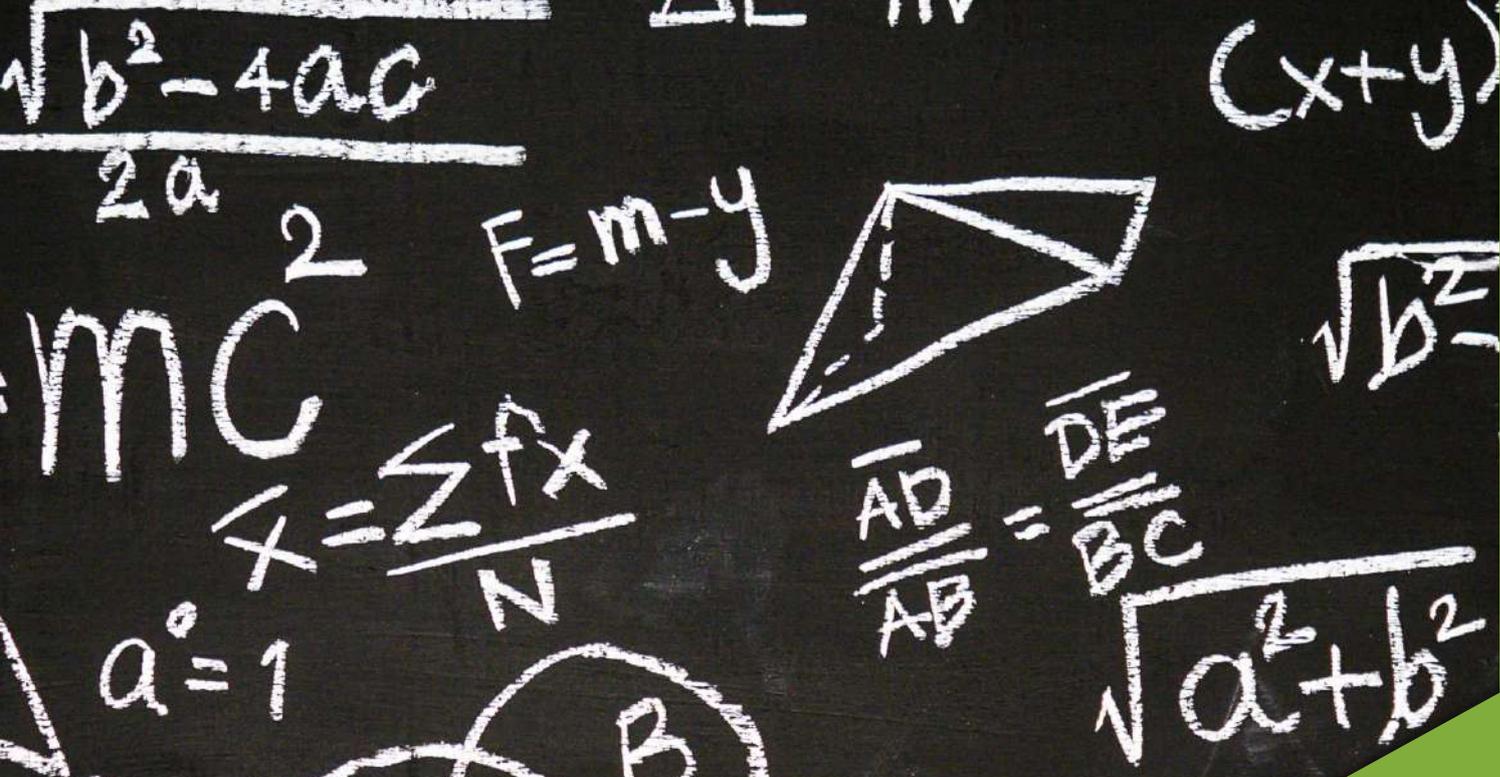


Mr. Muhammad Umar Siddiqui

Position: Assistant Professor

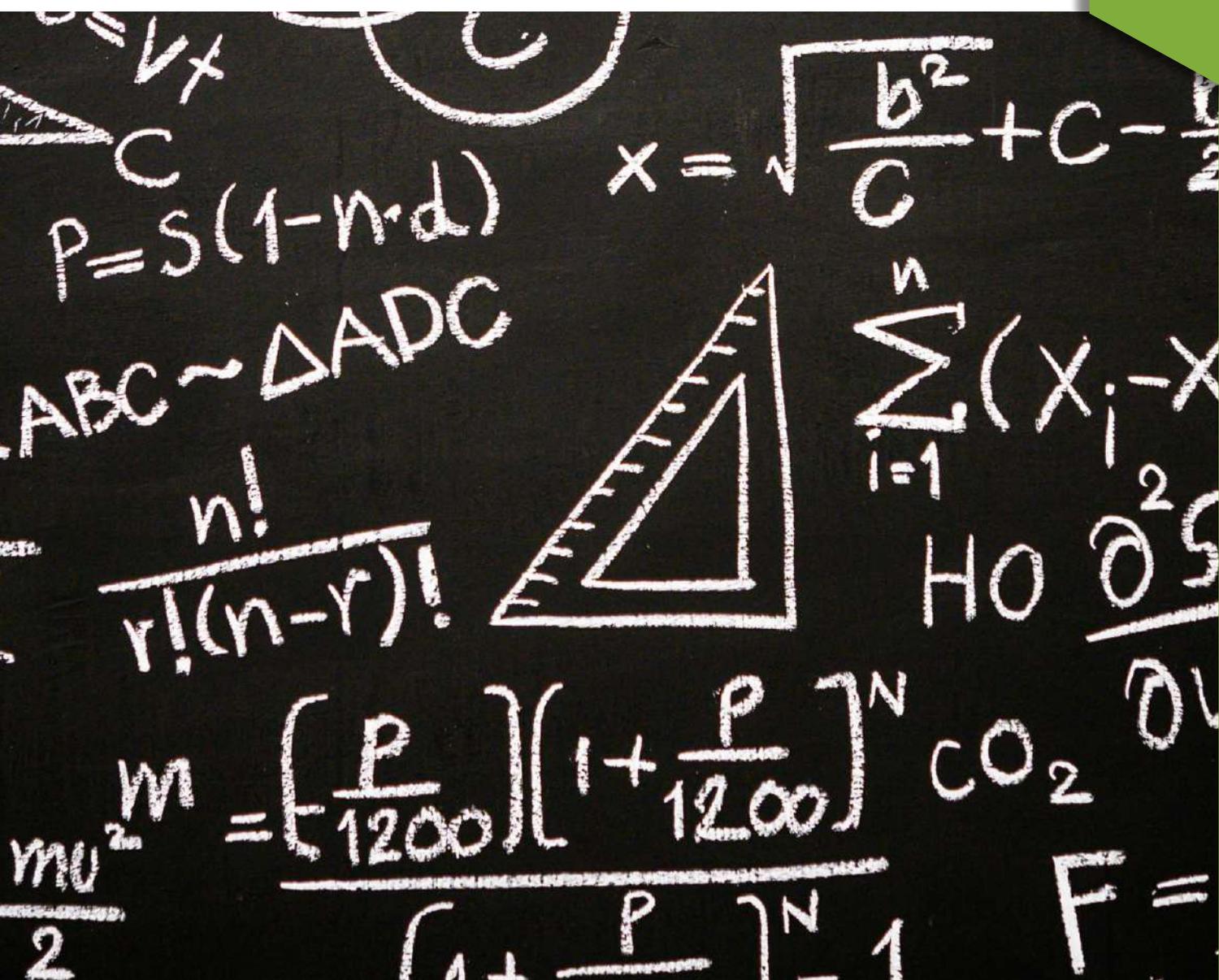
Qualification: MS, BUIITEMS – Pakistan

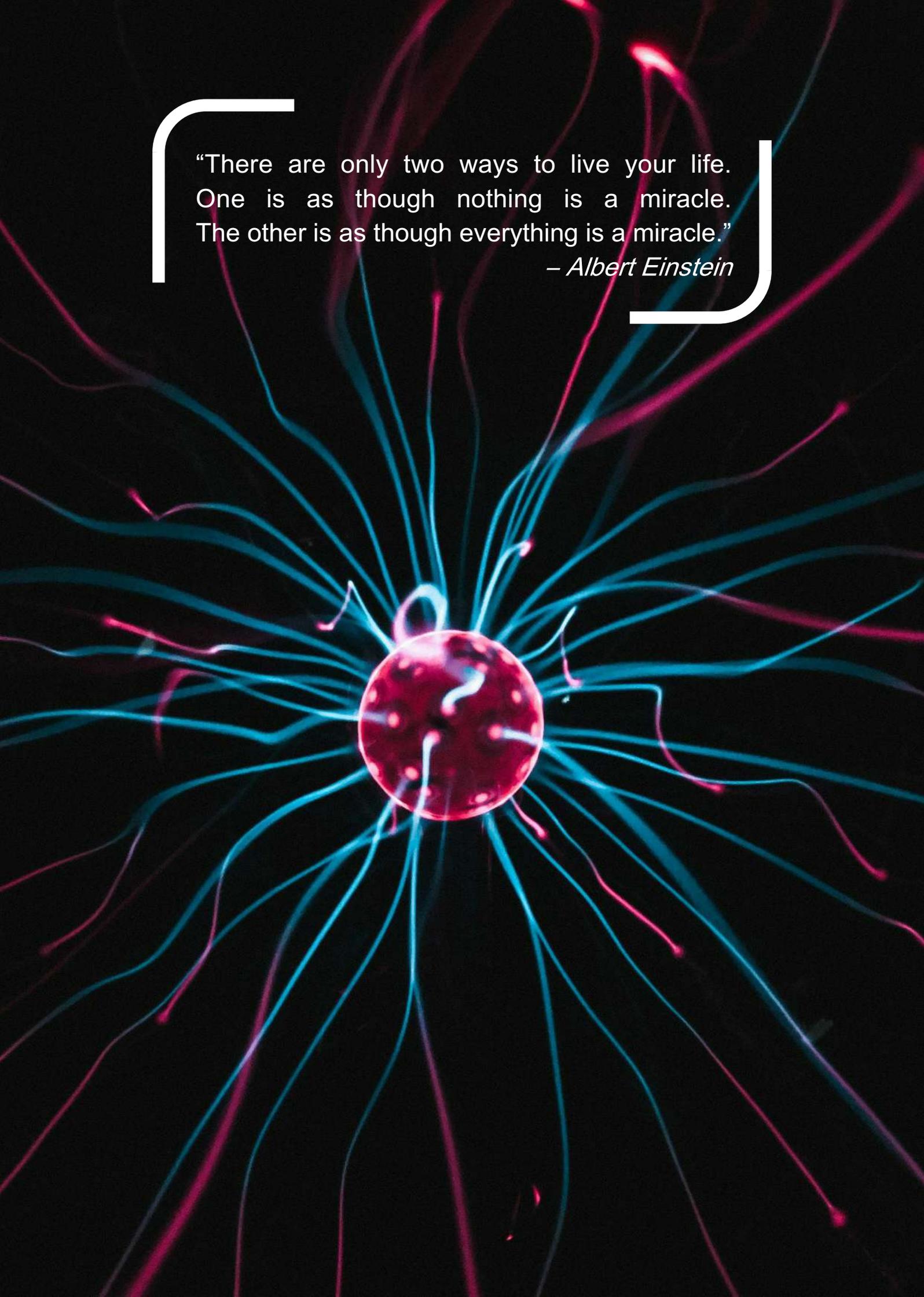
Research Interest: Semi Conductor Physics.



DEPARTMENT OF
MATHEMATICAL SCIENCES

05



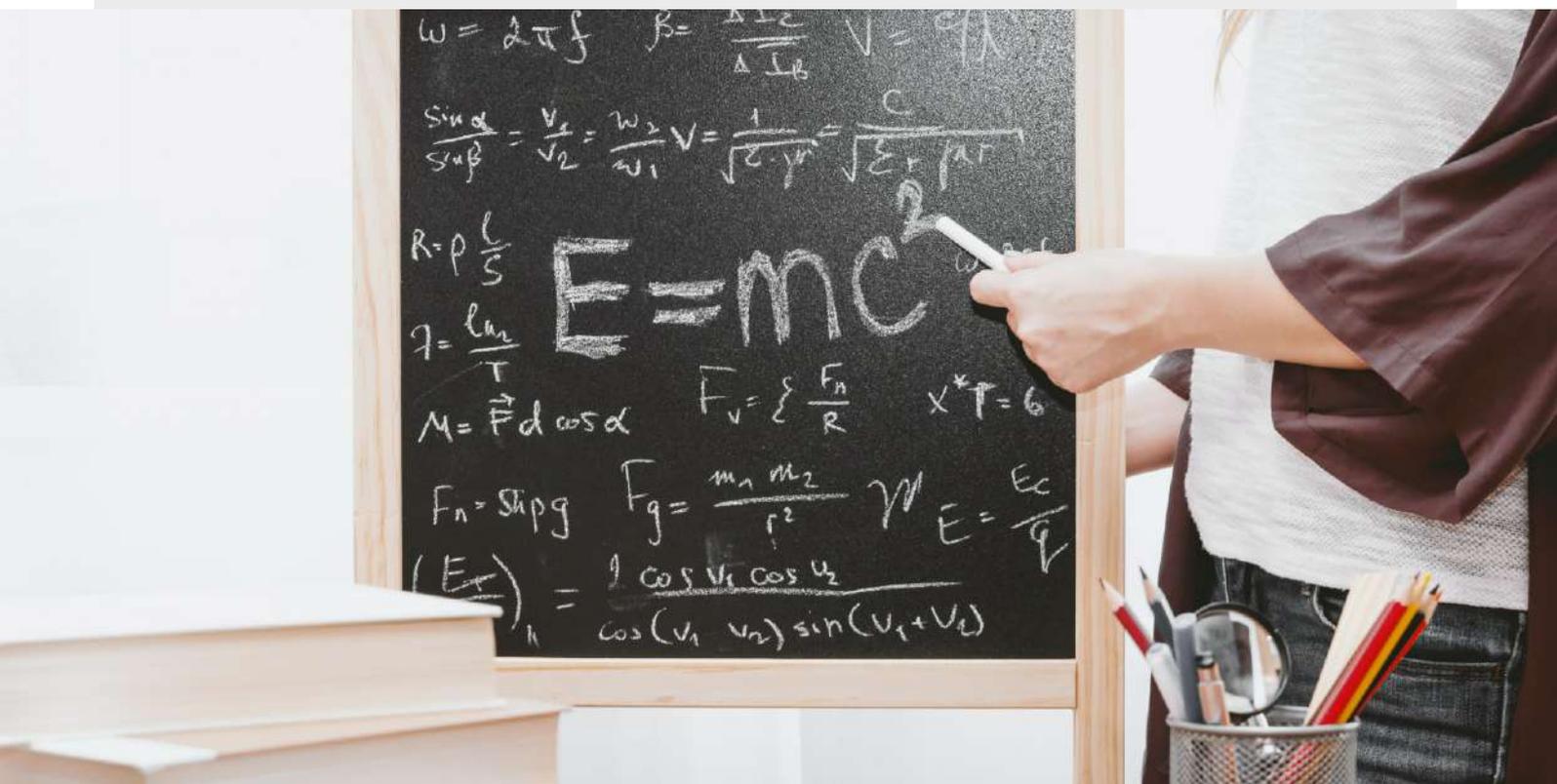


“There are only two ways to live your life.
One is as though nothing is a miracle.
The other is as though everything is a miracle.”

– *Albert Einstein*

Introduction

The Department of Mathematical Sciences, part of the Faculty of Basic Sciences, was established in 2003 and is one of the biggest departments at BUIEMS, Quetta. The department provides education in mathematical sciences to students hailing from Balochistan and other parts of Pakistan. The department also offers admission to foreign students. The Department of Mathematical Sciences provides teaching services to all other departments of the university in addition to running its own BS and MS programs. The graduate and undergraduate programs of the department are carefully designed with a thoughtful selection of courses from applied, pure, financial, and computational domains of mathematics in the light of guidelines provided by the HEC. The Department offers programs in various specializations which include Pure, Applied, Computational, and Financial Mathematics. Academia and students frequently participate in national, regional, and international conferences. The research interests of the Department of Mathematical Sciences range from abstract to applied aspects of the discipline, and in 2022 the department will start its Ph.D. program. Building on our current strength, our goal is to strengthen areas related to pure and applied mathematics. We believe that it will help students keep pace with the latest trends in mathematics on the one hand and contribute to society at large on the other





Vision

The Department of Mathematical Sciences offers a challenging and broad study program that supports the mission of BUIITEMS. Our aim is to provide high-quality education in the undergraduate and graduate programs to meet the needs of a diverse student body.

Mission

The Department of Mathematical Sciences provides a range of programs of study, including instructional practices that support effective learning. The goal of these programs of study is to equip all our students with the computational skills, conceptual understanding required to use quantitative reasoning and analysis effectively in their personal and professional lives. We aim to provide a stimulating experience that will support their future careers, whether those be in practical contexts or contributions to the mathematical profession through teaching, productive scholarship, and active participation in professional organizations.

Scope

There is an abundance of employment opportunities as a degree in mathematics is valuable for its close concurrence with the major science disciplines; there are a number of opportunities for candidates to work in tandem with the various disciplines of Engineering, Medicine, Aeronautical and Electronic streams as quantity analysts are sought after in almost every field of science.

Objectives

There is an abundance of employment opportunities as a degree in mathematics is valuable for its close concurrence with the major science disciplines; there are a number of opportunities for candidates to work in tandem with the various disciplines of Engineering, Medicine, Aeronautical and Electronic streams as quantity analysts are sought after in almost every field of science.



Scheme of Studies

BS Mathematics

First Semester

1. Calculus I
2. Elements of Set Theory and Mathematical Logic
3. Islamic Education/ Ethics
4. Fundamental of Computers
5. Reading and writing skills
6. Physics-I

Second Semester

1. Calculus II
2. Software Packages (Introduction to MATLAB and Maple)
3. Introduction to Statistics
4. Communication and Presentation Skills
5. Pakistan Studies
6. Physics-II

Third Semester

1. Algebra I (Group Theory)
2. Calculus III
3. Technical Report Writing and Presentation Skills
4. Discrete Mathematics
5. Introduction to Sociology

Fourth Semester

1. Affine and Euclidean Geometry
2. Numerical Methods and Linear Programming
3. Linear Algebra
4. Algebra II (Ring Theory)
5. Introduction to Economics

Fifth Semester

1. Point Set Topology
2. Classical Mechanics
3. Complex Analysis
4. Real Analysis I
5. Vector and Tensor Analysis

Sixth Semester

1. Differential Geometry
2. Mathematical Methods
3. Numerical Analysis
4. Ordinary Differential Equations
5. Real Analysis II

Seventh Semester

1. Number Theory
2. Functional Analysis
3. Elective-1
4. Elective-2
5. Partial Differential Equations
6. Project-I

Eighth Semester

1. Probability Theory
2. Integral Equations
3. Elective-3
4. Elective-4
5. Project-II

Scheme of Studies

MS (Mathematics)

First Semester

1. Core-I
2. Core-II
3. Core-III
4. Core-IV

Second Semester

1. Elective I
2. Elective II
3. Elective III
4. Elective IV

Third Semester

Research Thesis

Fourth Semester

Research Thesis

PhD (Mathematics)

First Semester

1. Elective I
2. Elective II
3. Elective III

Second Semester

1. Elective IV
2. Elective V
3. Elective VI

Doctoral Dissertation

Note

The PhD students shall not be offered the subjects which they have already studied during their MS / M.Phil classes.

STUDENTS' CORNER

Students partake in a variety of activities with the support of the department, and students are encouraged to find a balance to their studies through some external activities. Each year, students arrange welcome parties for incoming first semester students and farewell parties for those in their final semester, having successfully completed their degree programs. In addition, the Department of Mathematical Sciences has a Facebook page by the name of "BUIEMS Mathematical Society" where announcements relating to upcoming events in the department are posted and a guide for the fresh and incoming students of the department is available

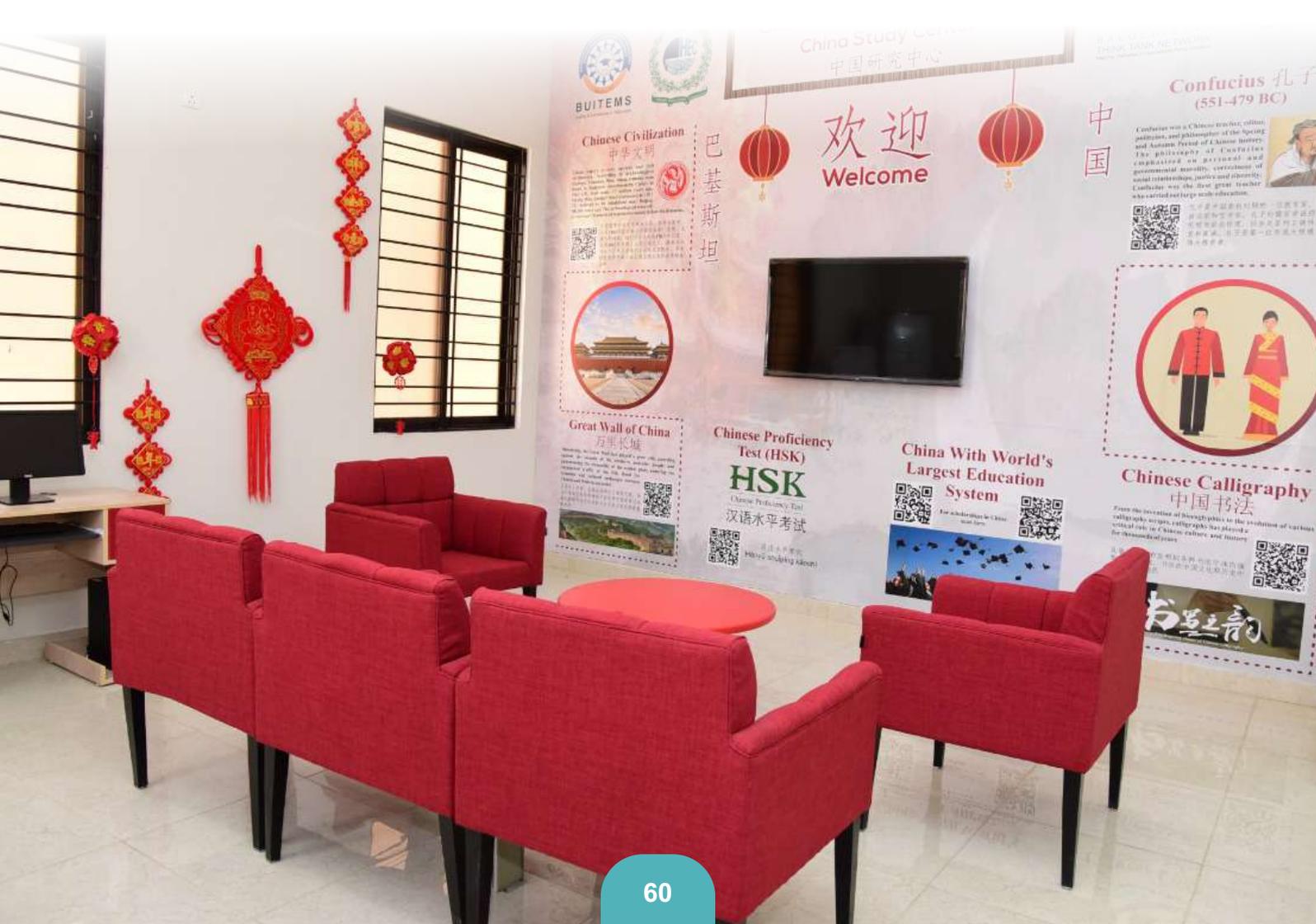
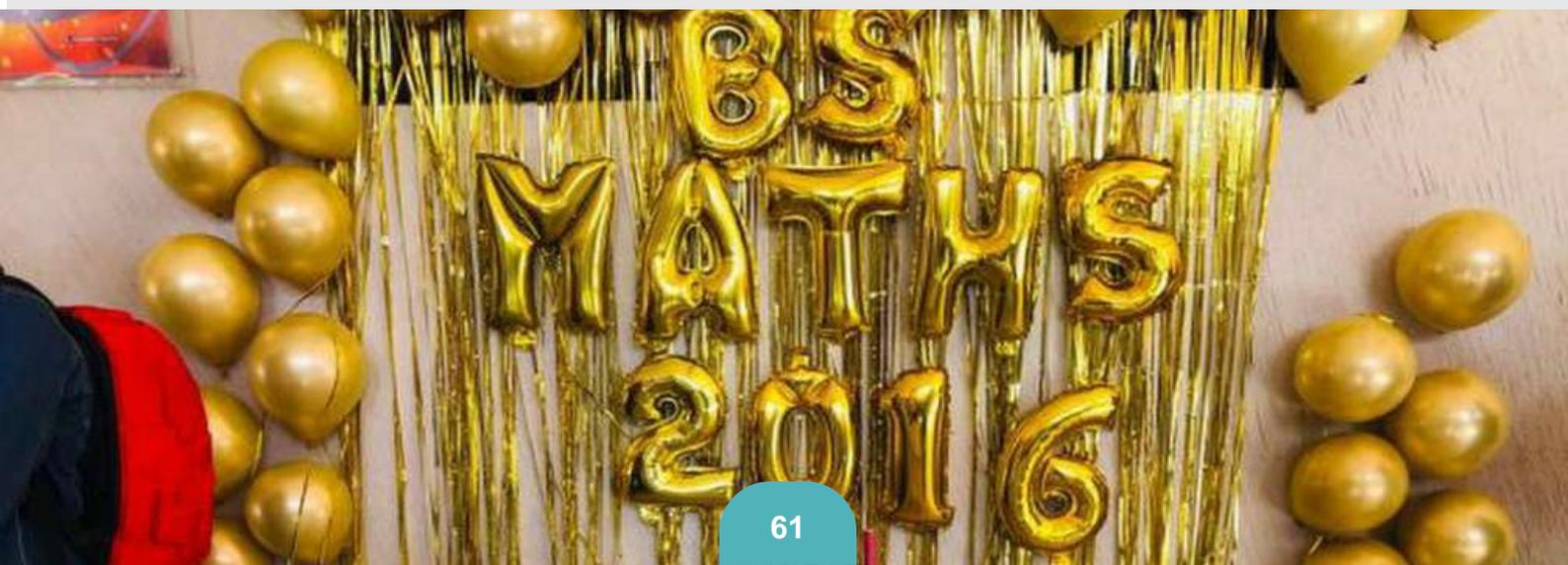


Photo Gallery







FACULTY PROFILES

The Department of the Mathematical Sciences employs faculty members with diverse backgrounds with expertise encompassing different areas of pure and applied mathematics. Here is a concise introduction of the faculty members of the department.



Dr. Hasrat Hussain Shah

Position: Associate Professor and Chairperson Mathematical Sciences
Qualification: PhD, University of Science and Technology, China (USTC)
Research Interest: General Relativity, Modified Gravity Theories
HEC approved Supervisor: Yes



Prof. Dr. Muhammad Zubair Khan

Position: Professor of Statistics / Director PRC BUIEMS
Qualification: PhD, Under split scholarship from Hajvery University + Aksaray University
Research Interest: Applied Statistics, Econometrics, Bio-statistics, Panel Data regression analysis, Financial Statistics.
HEC approved Supervisor: Yes



Dr. Farooq Hussain

Position: Associate Professor of Mathematics
Qualification: PhD, International Islamic University, Islamabad
Research Interest: Multiphase flows, peristalsis, viscous flows, heat transfer, nanofluid flows and, Cavitation & Bubble dynamics



Dr. Sardar Muhammad Hussain

Position: Assistant Professor of Mathematics

Qualification: PhD, University of Sao Paulo, Brazil

Research Interest: Fluid Mechanics



Mr. Asghar Ali

Position: Assistant Professor of Mathematics

Qualification: MPhil, Newcastle University, UK

Research Interest: M-theory and String theory.



Mr. Malik Hafizullah (On study leave)

Position: Assistant Professor of Mathematics

Qualification: PhD in progress from Sindh University

Research Interest: PDES



Ms. Sahar Raza

Position: Assistant Professor of Mathematics

Qualification: MS, Air University, Islamabad

Research Interest: Fluid dynamics, mathematical biology



Dr. Naheeda Iftikhar

Position: Assistant Professor of Mathematics

Qualification: PhD, University of Balochistan, Quetta

Research Interest: Fluid mechanics, numerical computation, and differential equations



Dr. Hassan Shah

Position: Assistant Professor of Mathematics

Qualification: PhD, University of Peshawar, Pakistan.

Research Interest: Gravitational collapse of massive objects, blackhole thermodynamics and propagation of gravitational waves

HEC approved Supervisor: Yes



Mr. Irfan Ali (On study leave)

Position: Assistant Professor of Mathematics

Qualification: PhD in progress at Ghent University, Belgium

Research Interest: Geometric function theory, non-linear analysis and harmonic analysis.



Mr. Qaisar Khan (On study leave)

Position: Assistant Professor of Mathematics

Qualification: PhD in progress

Research Interest: Group theory (coset diagrams), History of mathematics and mathematics education



Mr. Attaullah

Position: Assistant Professor of Mathematics

Qualification: PhD in progress, USA

Research Interest: Computational Fluid Dynamics



Dr. Abdul Quayam Khan

Position: Lecturer of Mathematics

Qualification: PhD, Lahore University of Management Sciences (LUMS)

Research Interest: _____



Ms. Ayesha Saif

Position: Lecturer of Mathematics
Qualification: MS, BUITEMS, Quetta
Research Interest: Special functions



Mr. Najeebullah

Position: Lecturer of Mathematics
Qualification: MS, BUITEMS, Quetta
Research Interest: Geometric Function Theory



Ms. Maryam Safdar

Position: Lecturer of Mathematics
Qualification: MS, BUITEMS, Quetta
Research Interest: Special functions



Mr. Mudassar Iqbal (On study leave)

Position: Lecturer of Mathematics
Qualification: PhD in progress at Universiti Teknologi PETRONAS (UTP), Malaysia
Research Interest: Computer graphics, geometrical curves and surfaces, numerical methods, Computational Algebra, Surface modeling, and visually pleasing graphical models



Mr. Abdul Wahid

Position: Lecturer of Mathematics
Qualification: MS, BUITEMS, Quetta
Research Interest: Mathematical Biology, Mathematical Modeling.



Mr. Aziz ur Rehman

Position: Lecturer of Mathematics

Qualification: MS, BUIITEMS, Quetta

Research Interest: Fluid mechanics



Mr. Hazrat Ali

Position: Lecturer of Mathematics

Qualification: MPhil, Hazara University, Mansehra

Research Interest: Numerical techniques and solution of systems of ODEs & PDEs



Ms. Faiza

Position: Lecturer of Mathematics

Qualification: MS, National University of Sciences & Technology (NUST), Islamabad

Research Interest: Fractional difference equations



Ms. Farah Naz

Position: Lecturer of Mathematics

Qualification: MSc, COMSATS, Islamabad

Research Interest: Fuzzy set theory



Mr. Bakhtiar Ahmed

Position: Lecturer of Mathematics

Qualification: MPhil, Quaid-i-Azam University, Islamabad

Research Interest: Computational group theory, theory of D-modules



Mr. Maqbool Ahmed

Position: Lecturer of Statistics

Qualification: MPhil, LUAWMS

Research Interest: Structural equation modeling, statistical machine learning and its applications, statistical genetics, and computational biology



Ms. Arifa Jahangir

Position: Lecturer of Statistics

Qualification: MS, International Islamic University, Islamabad

Research Interest: Mixture Models and Applied Statistics



Ms. Saima Fareed

Position: Lecturer of Statistics

Qualification: MSc, Gomal University, Dera Ismail Khan

Research Interest: Financial Time Series Analysis



Mr. Manzoor Ahmed

Position: Lecturer of Statistics

Qualification: MPhil in Econometrics, Pakistan Institute of Development Economics (PIDE), Islamabad

Research Interest: (Financial) Time Series Analysis, Machine Learning and Structural Equation Modeling (SEM)



Mr. Muhammad Bilal (On study leave)

Position: Lecturer of Statistics

Qualification: PhD in progress, Abdul Wali Khan University, Mardan

Research Interest: Applied Statistics



Ms. Faiza Saeed

Position: Lecturer of Statistics

Qualification: MS BUIEMS

Research Interest: Environmental statistics



Ms. Farida Aslam

Position: Lecturer of Mathematics

Qualification: MS, SBK Women's University, Quetta

Research Interest: Fluid dynamics



Mr. Syed Abdul Rehman (on study leave)

Position: Lecturer of Statistics

Qualification: PhD in progress, QAU, Islamabad

Research Interest: Statistics



Mr. Tahir Mehmood (on study leave)

Position: Lecturer of Mathematics

Qualification: PhD in progress, SMS, Lahore

Research Interest: Optimization, Linear Programming and Differential Equations

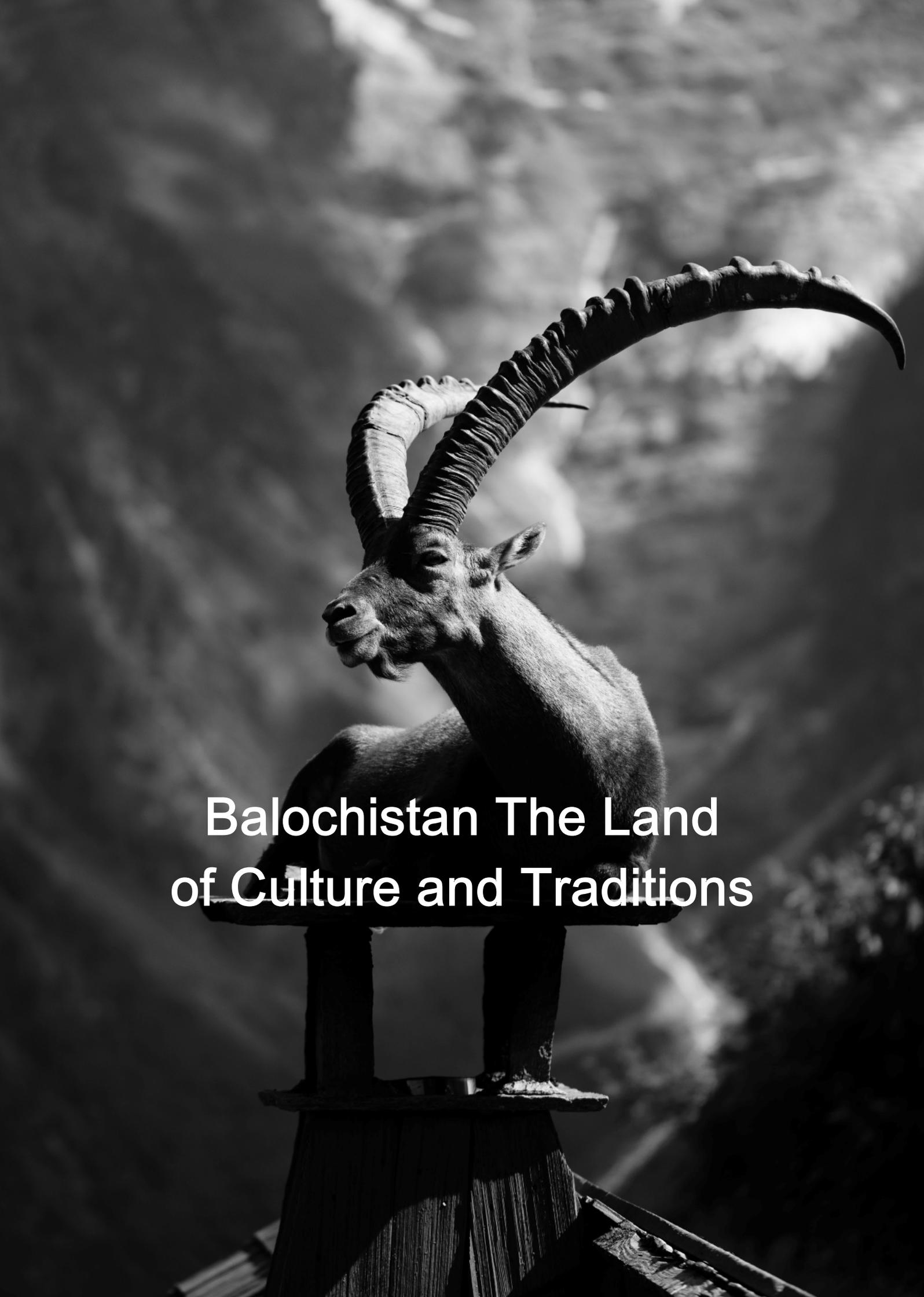


Mr. Mohammad Yaseen (on study leave)

Position: Lecturer of Mathematics

Qualification: PhD in progress, University of Balochistan, Quetta

Research Interest: Optimization, Mathematical Modeling, Differential Equation



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- ◆ Providing an environment conducive to learning, teaching, academic inquiry and innovation
- ◆ Maintaining academic excellence and professionalism
- ◆ Adhering to established systems for ensuring good governance for management and transfer of knowledge
- ◆ Benchmarking with other leading institutions of higher education for improvement
- ◆ Enhancing efficient and effective operations by encouraging participation of stakeholders
- ◆ Pursuing continuous improvement through creativity, team work and adaptation to change

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