BUITEMS

QUALITY & EXCELLENCE IN EDUCATION

UNDERGRADUATE PROSPECTUS 2024

Faculty of Information and Communication Technology

Global HUB for SDG8

UNITED NATIONS academic impact

2018-2021-2024

2024

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 a member of 6 reputed international networks and associations."

100+

Open days and events throughout the year

80%

Job placement ratio within the first year after graduation.

10%

QS World University Ranking

792

UI Green Metric

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

I have great pleasure in welcoming you to the BUITEMS. 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 BUITEMS 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.

Dr. Khalid Hafeez
Professor of AI and 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)

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Welcome

Fields of Study

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BUITEMS Explained

Balochistan University of Information Technology, Engineering and Management Sciences (BUITEMS) 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 BUITEMS Advantage: **Wide range of programs**

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

Our Programs

BUITEMS 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

BUITEMS offers a diverse and comprehensive choice of courses in five 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 to create their own BUITEMS experience!

BUITEMS Structure
who does what?

BUITEMS quest for academic excellence is based on five fundamental pillars; the students, the faculty, 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 five faculties and each faculty is comprised of multiple departments. The Faculty of Information and Communication Technology (FICT) has seven departments: Computer Science, Information Technology, Computer Engineering, Electronic Engineering, Electrical Engineering, Software Engineering and Telecommunication Engineering. 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 Faculties:

The Faculty and its Deparments 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 futurecontributors in the fields of science, engineering and arts. We strongly encourage all applicants to choose fields of study that truly interest them. With the brilliant faculty at FICT 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 BUITEMS 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. BUITEMS expects its students to excel further in terms of academic performance. Therefore, you should be aiming at excellent 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 BUITEMS, 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 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.

Self motivation

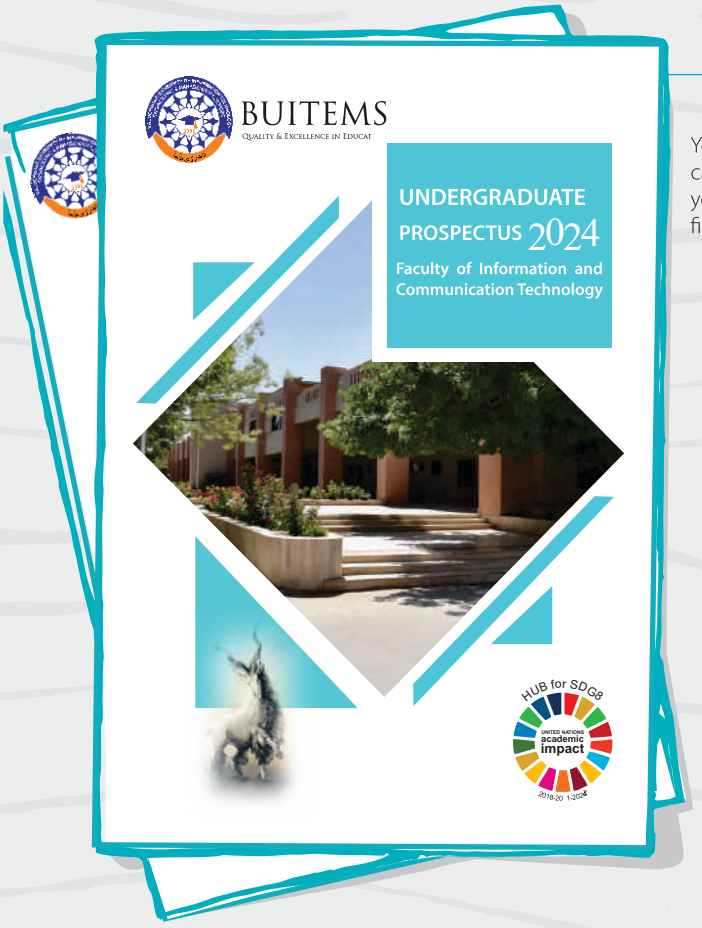
We are looking for students who are self motivated and who can think critically. We are looking for students who can understand the model of the higher learning where a student is required to study and work independently in addition to classroom learning. If you believe you can excel in higher learning 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.

If you think you have these abilities, we're looking for students like you and hope you will apply. See Applying to BUITEMS for further information.

Applying to BUITEMS:

Four simple steps

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

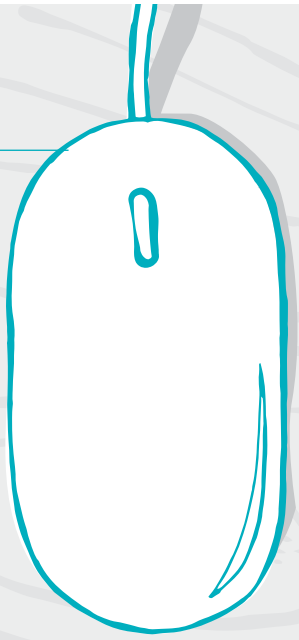


1 Major (or field of study)

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.

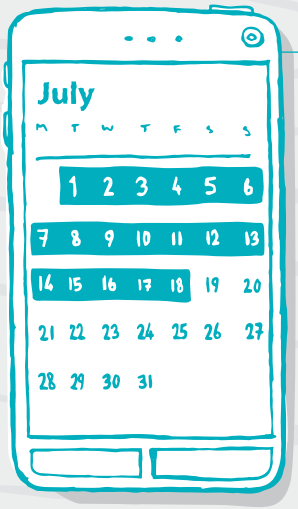


Calculating the merit

Merit is based on the cumulative of 17% for the marks scored in matriculation examination, 50% for the marks scored in intermediate examination and 33% for the marks scored in the NTS admissions test

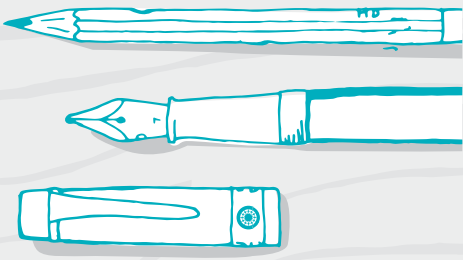
Further information

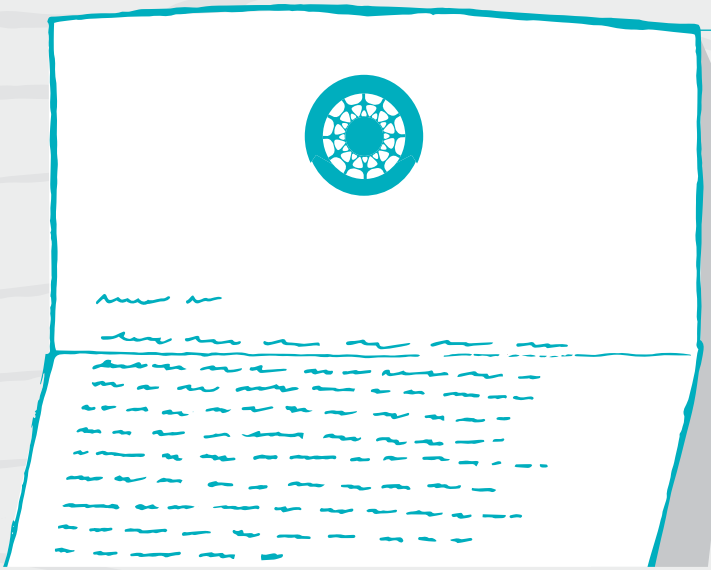
admissions.buitms.edu.pk



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 matriculation, intermediate and the NTS admission test.

International students

We, at BUITEMS, believe that diversity brings innovation. We highly encourage international students to apply for admission at BUITEMS. Many international students from different parts of the world are enrolled in various study programs at BUITEMS. 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 BUITEMS 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 BUITEMS student, you will be part of one of the nation's largest engineering, sciences and art schools. BUITEMS 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 BUITEMS 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 BUITEMS 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. 4000 for national applicants and US $55 for foreign applicants. Whereas fee for manual application Processing is 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 BUITEMS, Quetta.
- Cash deposited in Account Number: 23587000000201, Habib Bank Limited, BUITEMS 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 BUITEMS?

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 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 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.

For undergraduate and MS programs, a minimum CGPA of 2.0 and 2.5 respectively is required to graduate.

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 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.

What are the different financial assistance options at BUITEMS?

The BUITEMS 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 BUITEMS 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.

Teaching and Learning:

A world class provision

We provide great learning opportunities for our students. We boast of the most personalized teaching methods for our students, complemented by effective supervision.

The BUITEMS Advantage: Academic excellence

ICT R&D Fund

Every year, 10 innovative research projects from FICT are funded by the Ministry of Information Technology.

Supervisions

Supervisors are specialists in particular subject areas.

14 : 1

Student-teacher ratio.

As a research-intensive institution with a commitment to provide high-quality education, BUITEMS ensures an academically rigorous and stimulating experience for its students. Our Graduate Studies Office is dedicated to provide assistance and a systematic mechanism for the completion of graduate programs (MS and PhD). Graduate programs at BUITEMS are aspired to meet the competitive edge by considering the global requirements and by improving students' academic competence through course work, field-based exercises and research studies that are relevant and useful in real world.

Programs are designed by keeping in view the global trends and requirements of the Higher Education Commission, and by improving the capacity in meeting the competitive edge at national and international level. Highly-qualified faculty members, equipped labs and structured program at BUITEMS provide a high-class learning experience in the undergraduate and graduate programs.

We are committed to provide outstanding academic program that offer an excellent teaching and learning opportunity. We are here to foster the leaders of tomorrow in Science, Technology, Engineering and Mathematics (STEM) and arts, enabling the students to feel and experience the standards prevailing in the best universities of the world. We aspire to raise revenues from partnerships, research grants and technology transfer while strengthening our ability to foster innovative research, establish global partnerships, and enhance our contribution to the societal and technological advancement of our community."

Programs at BUITEMS are inspired by our commitment to equip students, employers and the wider community with the knowledge, skills and ideas to become agents of a pleasant change in the global community. In addition to receiving course instruction and supervision from internationally recognized faculty, you benefit from a supportive and enriching learning experience at BUITEMS.

How will I be taught?

You will benefit from a contemporary teaching and learning environment at BUITEMS. Our facilities include modern lecture rooms, state-of-the-art labs, research clusters, and senior design labs as well as online access to many international databases including IEEE, Springer, ACM, and ScienceDirect

In line with global academic trends, we equally emphasize on indepen dent and self study. You are responsible for your own studies and are expected to study beyond the class lectures and study material.

Lectures

Lecture is the core teaching and learning point and also your starting point for research which lasts for a minimum of one hour and a maximum of three hours per week for a given course. Lectures delivered by experienced faculty can be highly-stimulating, depending on the course material, the instructor may use a whiteboard, a digital multimedia (or both) complemented with oral instruction.

Experiments

These are the laboratory classes. Subjects with real time applications are instructed for three hours hands-on practice on the equipment and tools; and are separately assessed.

Supervisions

Supervisions are special hours of in depth discussions between individual student or groups with a subject or research area specialist teacher

Study tours and eld trips

The departments conduct study tours and field trips to industries and labs in different parts of the country. Students are facilitated to participate in different intra university competitions and are also assisted in visiting other universities for experience. study tours are usually an extended form of field trips that involve outbound trips for more than a night. During the course of these tours, students are encouraged to build interpersonal skills with their batch mates through shared learning."

Independent research
(final year projects and theses)

Undergraduate students are engaged to carry out a one-year long research and development project under the supervision of a specialist faculty member. The students usually conduct this work in the Senior Design labs. The graduate students conduct independent research work in the form of a thesis under the guidance of a thesis supervisor.

Peer mentoring

Student volunteer tutoring is available in the form of peer-mento ring. Select senior students who are young gurus in a given field of study are enrolled as mentors in the peer-mentoring program. The peer mentors guide and counsel students

who require extra tutoring. At FICT, we provide support, encouragement, and advice to students who are facing problems related to academics or life at campus.

Internships

Internships offer the opportunity to apply the knowledge gained from academic studies in a practical workplace setting. These experiences expose students to various occupations and industries. With a clear purpose to complete specific projects, internships give students the chance to evaluate and reflect upon their chosen career field, providing a significant source of self-awareness and skill identification. Over 400 students at FICT are directly placed under the internship program every year; while many students get advice and indirect assistance in finding internship placements.

Support along the way

Facilities and resources

We are committed to connecting you with the right resources, from dedicated teaching staff to a world-class library and a range of co-curricular facilities. At BUITEMS, we spend millions on our equipment and academic support services to create a quality environment where you feel stimulated and strengthened.

Libraries

With over 40,000 books the BUITEMS central library continues to add to student's passion for reading. Both the campuses house one central library each with a number of small departmental libraries. The libraries also provide our students with free access to a world of books through digital library access. The library experience is augmented through a state-of-the-art automated library management system that assists in searching and locating books in the library anywhere from the campus.

Online access to:

Institute of Electrical and Electronics Engineers (IEEE) :

The IEEE/IET Electronic Library (IEL) provides access to almost a third of the world's current electrical engineering and computer science literature, featuring high-quality content from the Institute of Electrical and Electronics Engineers (IEEE) and the Institution of Engineering and Technology (IET)"

Springer Link :

Springer Link provides access to 503 full-text Springer Verlag Journals and 738 full-text journals formerly published by Kluwer Academic Publishing, one of the world's leading information services for Science, Technical and Medical journals.

Association of Computing Machinery :

The ACM Digital Library provides online access to thirty magazines and journals in computing and IT, with complete archive reaching back to 1950's also includes the ACM Special Interest Group newsletters and conference proceedings, many with full archives. The ACM Online Guide, allows ACM users to expand their searches to include non ACM works in their results.

Research center and senior design labs

BUITEMS is committed to provide a conducive environment to the entire learning experience of students. The research center located in the Sir Syed block is a cutting-edge facility to serve that commitment.The research center has dedicated research desks for graduate students. The research desks are equipped with high performance computing and related resources necessary to carry out graduate research. To cater to the needs of undergraduate students, the facility provides senior design labs.

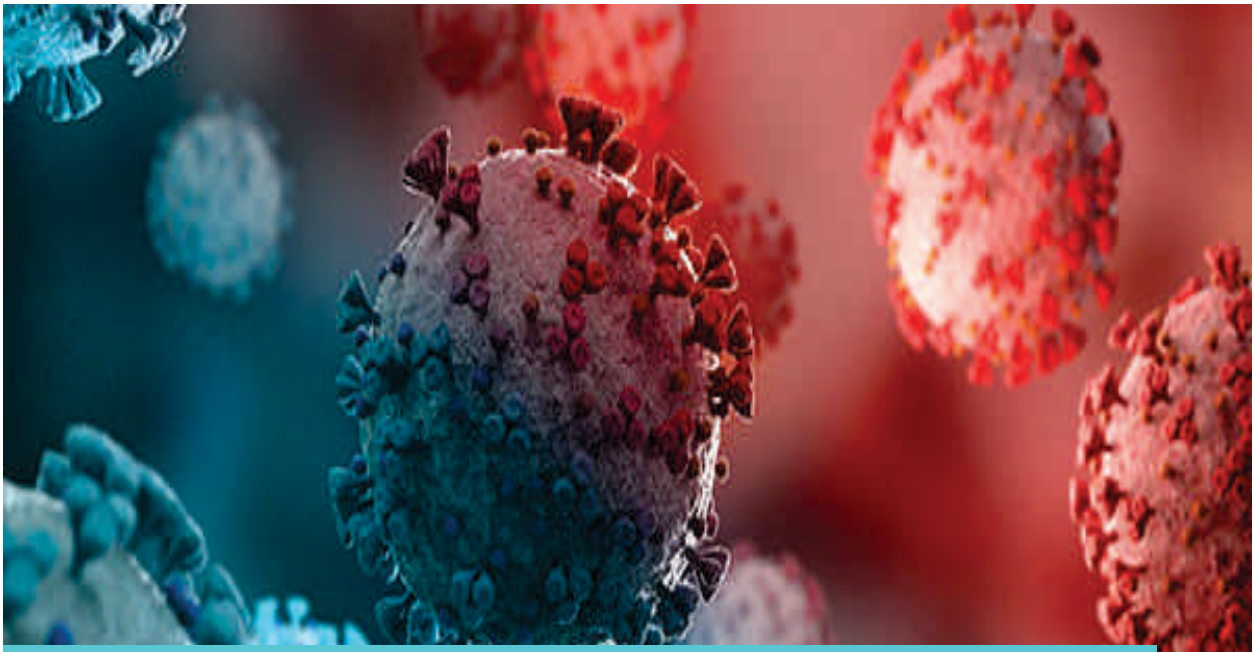
These labs offer dedicated spaces for final year projects, equipped with computing and other necessary resources tailored to the students' disciplines within ICT."

Art galleries

Thanks to the Faculty of Basic Sciences, the campus boasts several art galleries. These galleries showcase a fascinating collection of modern art, including artifacts, paintings, and sculptures created by the students and faculty of FBS. Even if not directly related to your course, students of FICT spend time and receive their share learning and knowing arts at the galleries.

Uninterrupted Learning During the Pandemic

The pandemic did not halt our progress; neither did we." In the wake of COVID-19, BUITEMS decided to continue the academic activities online and remained one of the few universities in Pakistan with a 100% readiness to continue the classes online."



BUITEMS RESPONSE TO Pandemic COVID-19

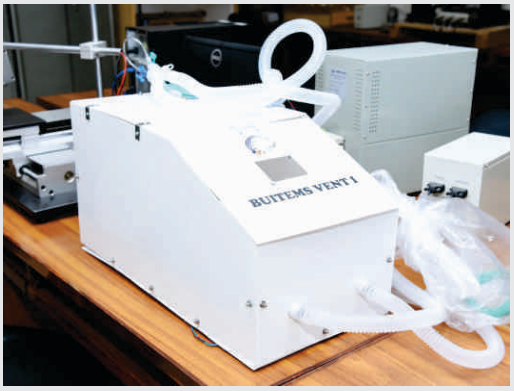
COVID-19 has halted the global, social, and economic progress challenging 21st Century lifestyle and workplace practices, thus impacting the conventional institutional arrangements. As an immediate response to the pandemic understanding the gravity of the situation and its consequences; BUITEMS leadership started with closure of all its facilities for faculty, students and staff, however ensuring that the learning process and research activities continue; BUITEMS stands together with global community during Covid19 and plays its role in continuing the learning processes and research; supporting government with policy frameworks; encourage other educational institutions to continue online education and support them in the process; collaborate with national, regional and international educational institutions.

BUITEMS signed an agreement with Microsoft

In order to create a virtual work space BUITEMS signed an agreement with Microsoft and issued accounts to all students and employees. Microsoft Office 365 (O365) accounts were acquired, and training on the effective use of Microsoft Teams (MT) for online classes was imparted to all Deans and Department Chairs.

BUITEMS realized that internet connectivity, cost, and adaptability to the new working environment would be challenging and would require a resolve for the successful conduct of online classes, especially when such arrangements had never been practiced before.

BUITEMS realizes that COVID-19 will disappear; however, online teaching will not. The pandemic has changed the way students study and the way teachers teach. Therefore, BUITEMS' focus is on the adaptability of the best new working practices, with an emphasis on creating online classes that accommodate learners.



"What impresses me more about BUITEMS is the high standards that it holds for quality, objectivity and the growth opportunities that it provides to talented and hardworking people."

Babar Ali
Graduate Student
BS Electronic Engineering

Student Life:
More than just studying

Life at BUITEMS is a work-hard-and-have-fun culture. As members of the BUITEMS family, the student, faculty, and staff enjoy an exciting, vibrant, and colorful life at BUITEMS. 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 BUITEMS Advantage: **Work hard and have fun**

20 +

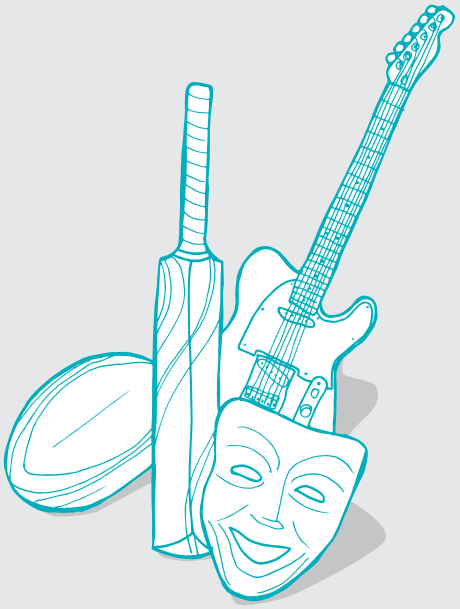
Student clubs and societies to choose from.

World-Class Sports Facilities

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

Arts and culture

Non-stop events complemented with excellent venues.



Quality education and learning...great campus and above all lively environment.

Isma Batool
Alumna
BS Software Engineering

I found it to be the best institute...full of Opportunities for some of the most hardworking students around!

Anil Amjad
Alumna
BS Computer Science

Events and fests

From the one-of-a-kind cultural festivals on campus to accomplished student performances in theater, arts, and culture, Student Affairs plays a leading role in life at BUITEMS. Students Affairs comprises of more than twenty students clubs and organizations that continuously provide fuel for constructive social life at BUITEMS. 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 Fest, and the Homecoming. 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. The sense of ownership of the institution among the students and staff is exemplary at BUITEMS. The quarterly newsletter and Markhor magazine provide a coverage of the events and developments on campus.

The Olympiad

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

Community service

Another important aspect of the life of BUITEMS family has been community involvement and service. BUITEMS family members have a very special motivation for social service and social contribution for the society. The students and staff are contributing in the elementary education for child labor under the Free Citizen Schools. The organization has been formed by the staff and students of BUITEMS. Through the organization, the students and staff of BUITEMS 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 in their health problems. BUITEMS blood donation drives have earned good recognition in the province A large number of citizens have been helped with BUITEMS blood donations. BUITEMS has also been helping the citizens of the province in their career planning, and providing counseling on scholarships. The counseling and trainings are organized for the young graduates of different universities of the province.

Continuous buzz

BUITEMS enhances the ability of students and staff to reach their fullest potential through diverse academic, personal and professional-development experiences. To achieve this, we foster a welcoming, stimulating campus life environment where students and staff develop intellectually, experience meaningful co-curricular opportunities, evidence civic responsibility, model intercultural and interpersonal understanding, and promote health and well-being. BUITEMS family is prepared to freely pursue life-long personal and professional fulfillment, engagement, and stewardship for ever-changing local and global communities

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, and you can get fit and have fun at the same time.

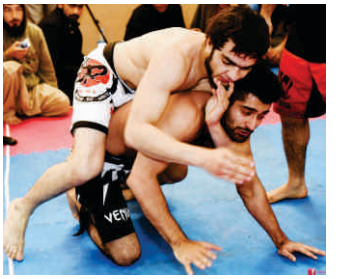
If you are a talented athlete in training, we offer a range of services to support you as well as sports bursaries and funds for team participations in the inter-university championships and tournaments.

Facilities

BUITEMS boasts in providing one of the best sports facilities in the nation. Sports and athletics from one of the core features of life at BUITEMS. The newly constructed sports complex is the 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. The fully equipped gym and fitness center are 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 treat for football fans and players. The lush green ground remains one of the most busy 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
- Basketball courts

In and around BUITEMS

BUITEMS 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, BUITEMS has loads to offer you as a student.

The World in BUITEMS

With students and faculty from different cities around Pakistan, and the world, BUITEMS brings a diverse world to the campus. With such a unique blend of people, life in 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 country's culture and share the festive mood and vibes with the BUITEMS community.

Campus tours

A frequent sight at BUITEMS is that of young school children being escorted by a guide, walking across different facilities on campus.Young school children from different schools of the province are invited to the campus for university life orientation. Young school children are given an orientation of the variety of science, engineering and arts disciplines offered at the university. The children spend a day at the campus and witness the university life. The unique experience at BUITEMS for school children is aimed at helping the students plan their careers and future early in their lives. The exercise will help producing 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 BUITEMS serve the best. Retail dining options include Road Stoves, Foodie, Usmania Café, Mid Canteen, Café Chromepur and Rooftop. BUITEMS 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 free wheeling academic debates, poetry recitation and literary repartee in the cafes.

Entertainment

At BUITEMS, we Deliver in tun everyday, 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 BUITEMS 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 flash 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

BUITEMS is located just three kilometers away from Quetta International Airport. The airport, through many national and international carriers, provides a round-the-clock connection to other major cities of Pakistan and abroad. The campus is located adjacent to the RCD International Highway.

provides road access to the rest of the nation and the Central Asian countries.

Going places with BUITEMS

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 BUITEMS we encourage, support and assist our students to participate in many national and international conferences, competitions, and study tours. BUITEMS 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 kilometers 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 armies that once passed through the region 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.

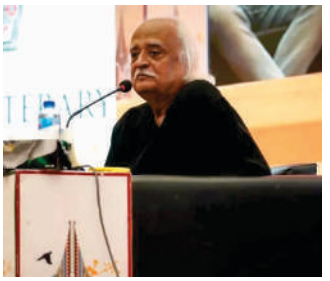
SDGs & FICT

BUITEMS as United Nations Academic Impact Hub for Goal 8. The Balochistan University of Information Technology, Engineering and Management Sciences was chosen as the SDG Hub for Goal 8 (Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all) by the United Nations Academic Impact (UNAI) in 2018 for a period of three years. In recognition of the research, innovation and scholarship undertaken in support of SDG, UNAI extended the term for BUITEMS as the global SDG8 hub 2021-2024.

Faculty of Information and communication technology, BUITEMS is an active partner of UNAI, and ensures periodic retrospective the implementation of the SDG 2023 agenda by incorporating and evaluating its objectives in light of the sustainable development goals. All the departments of FICT ensure that the student capstone projects contribute to at least one of the seventeen goals. Further, to keep the stakeholders engaged in the support of SDGs, a number of national and international events are arranged including: The Hult Prize Foundation in partnership with the United Nations, Promoting SDG8 to Advance Agri-Entrepreneurship for Balochistan Youth, in partnership with FAO, 1st International Symposium on Building Economic Resilience against Pandemics, in collaboration with the UNDP, World Youth Skills Day in collaboration with ILO and a dedicated track on Sustainable Development & Society during our very famous International Conference on Computing, Electronics, and Electrical Engineering (ICE Cube).

Quetta Literary Festival

The Quetta Literary Festival is aimed at promoting art, literature, aesthetics, and discussion in the referential context of Quetta and Balochistan. The festival not only seeks to create a shared space for authors, artists, journalists, thinkers, filmmakers, musicians, as well as for the readers, audiences, and art lovers, but also brings together policymakers of national and provincial level to discuss challenges and seek solutions in an interactive & celebratory environment. Hence, QLF is an avenue where thought and deliberation meet zeal and excitement. QLF significantly impacts the student experience by focusing on various dimensions, including youth engagement, cultural and intellectual representation, promotion of arts and aesthetics, and long-term constructive development. It also fosters investment in the province of Balochistan.For details please visit www.quettalf.org.



International Conference on Computing, Electronics, and Electrical Engineering (ICE Cube)

The ICE Cube conference is a renowned international conference hosted by FICT biennially. The conference focuses on the exchange of ideas on burning problems of the national level such as e-governance, energy, information security and communication security, mining of public-sector data for meaningful analysis and policy making, e-education, and sustainable technologies. The ICE Cube was first held in 2016 followed by 2018 and then 2021. The 3rd International Conference on Computing, Electronic and Electrical Engineering (ICE Cube 2021) was held on 26th and 27th Oct 2021 (Hybrid Mode i.e., physical and virtual). Further details of the IEEE ICE Cube are available on the conference website http://www.icecubeconference.org.

Student Achievements

Looking back, 2021 was a year of hope and new beginnings, following a 2020 that brought global challenges and significant changes to our everyday lives. Yet, these years have been etched into the history of BUITEMS not as periods of tragedy but as times of resilience and growth. With a progressive mind set, we navigated through those difficult times. Alhamdulillah, the Markhors achieved many noteworthy successes during those years.

The participation in the Bali Asia International Model United Nations (BAIMUN) in 2020

Our students are our pride. Atqa Rana, student of Software Engineering was the only delegate selected from Pakistan to participate in BAIMUN, held in Indonesia. She was selected as a delegate of Pakistan in UNWTO (United Nations World Tourism Organization) council under the topic of Sustainable Tourism along with a position paper and proposed a UNWTO resolution with the agreement of other countries.

BUITEMS Students shine bright in Huawei Seeds for the Future Program-2020

Technology is the new gold, and nations that are investing in becoming technologically sound are securing their future. A team of students from the BS Computer Engineering secured top positions in the Huawei Seeds for the Future Program 2020

Team BUITEMS secured a position among the Top 10 Global Winners of the Google Android Developers Challenge back in 2020

Blessed are those who help others with solutions that are out of the box. Team BUITEMS from Faculty of Information Communication Technology was amongst the top 10 winners of the ADC. The team has created an app "AgriFarm" that helps farmers detect plant diseases and prevent major damage in fruits and vegetables such as tomatoes, corn and potatoes.

Research

Research and development forms the core of life at Balochistan University of Information Technology, Engineering and Management Sciences (BUITEMS). As an institution of higher learning, BUITEMS is increasingly focusing its efforts and energy on R&D.

The BUITEMS Advantage: **Innovation and Commercialization**

To this end, research groups at BUITEMS are continuously busy solving problems pertinent to the province, the nation and the world. Research at BUITEMS is rapidly evolving to a level where it will inspire game-changing ideas and new technologies that will help drive economic growth, while improving human life on both the regional and global scale.

This is all possible because the culture at BUITEMS encourages thinking big and fearless pursuit of grand challenges. Another factor that sets BUITEMS apart from other research universities is the harmonious, highly collaborative environment among the faculty that fuels the university. The challenging research goals at BUITEMS are continuously accomplished through funding from BUITEMS and with the support of national and international agencies who share a passion for great ideas, courageous thinking and a desire to shape the future to come. With the courage and passion of the people at BUITEMS and with the help of friends, BUITEMS will achieve its greatest aspirations to become the technological research university of the twenty first century.

Office of Research, Innovation, and Commercialization

To manage the enthusiastic and comprehensive research objectives, BUITEMS has established a central Office of Research, Innovation, and Commercialization (ORIC). ORIC has become a pivotal entity to promote research in the university and is assisting researchers within the university to think the unthinkable research solutions and seek national and international funding for their endeavors. Through ORIC, BUITEMS is also encouraging its researchers by providing them incentives to publish quality research work in the most reputable research journals worldwide.

Funded Projects

1. The Outbreak of Online Education in the Growing Digital Economy and Digital Gender Divide Issues
   Total Funding
   PKR 1.5 Million
   Funding source
   Massey University, Auckland New Zealand

2. Mering the aquifer using smart monitoring & data-driven approach to assist in devising adaptive groundwater management strategy in Balochistan
   Total Funding
   PKR 53 Million
   Funding source
   Higher education Commission 2020-2023

3. Design and Prototyping of Bio-Telemetry Antenna System for the Healthcare System of Balochistan.
   Total Funding
   PKR 2.6 Million
   Funding source
   Oric Large Scale Grant (completed)

Control, Automotive & Robotics Lab - CARL

Control, Automotive & Robotics Lab (CARL) research team at BUITEMS is a research cluster that has been working on the development of robot-assisted systems to solve pressing problems of Pakistan, and particularly Balochistan, using Robotics and Artificial Intelligence. The lab is part of a consortium of 11 labs in 13 universities under the name National Center of Robotics & Automation (NCRA). The lab consists of qualified Ph.D's, industry researchers, and experts to achieve solutions to local problems. CARL is currently working on a project worth 80 million PKR funded by the NCRA to research and develop a search and rescue snake robot and a pipeline of social mobile autonomous robot including various robots such as WaiterRobot, SMART and +Rover.

Established under the National Centre for Robotics & Automation (NCRA)

NCRA is a PSDP project worth PKR 1.295 billion under the umbrella of the HEC. The National Center of Robotics and Automation is a consortium of universities in Pakistan, headquartered at NUST College of EME in Rawalpindi. The Centre proposes to become the leading hub of think, design, innovate and commercialize to transfer knowledge to the local economy in the area of Robotics and Automation, to facilitate the researchers in the field of Robotics and Automation, help them establish and grow Automation industry towards Industry 4.0 and seek solutions to the indigenous problems through Robotics.

CONTROL AUTOMOTIVE AND ROBOTICS LAB

BUITEMS

NCRA

NATIONAL CENTRE OF ROBOTICS & AUTOMATION

Domains

Search and Rescue Robot

The hyper-redundant snake-robot, which uses state-of-the-art reinforcement learning algorithms, can maneuver in complex environments, such as collapsed buildings and coal mines, to identify human survivors. Can be used for espionage. These robots should be preferred because they can move in very narrow places, on different terrains on the ground and in the water where the wheeled and legged robots fail. Our goal is to make this robot close to a natural snake as much as possible to exploit its exible movements. Our long-term goal is to turn our snake robot project from a prototype into an actual machine that can be deployed in earthquake-affected places and save lives by bringing state-of-the-art rescue equipment for disaster relief teams in Pakistan.

Mineral Inventory Balochistan

Social robots can interact with humans to provide information and guidance. They have multiple application including being stationed at Airports, Universities, and public gatherings. In our lab's dynamic social autonomous mobile robots pipeline, we proudly introduce the WaiterRobot, SMART (Social Autonomous Mobile RoboT), and +Rover (pronounced adrover), each contributing unique capabilities to redefine human-robot interactions. The WaiterRobot excels in providing efficient and courteous service through advanced navigation algorithms. SMART, designed in the form of a charismatic minion, operates in theme parks and malls, engaging customers with unparalleled social finesse. Additionally, SMART and +Rover share the ability to communicate with customers, with +Rover offering an innovative revenue-generation dimension by displaying ads. This integration of social awareness, mobility, and commercial functionality underscores our commitment to advancing the frontiers of autonomous robotics for both entertainment and economic impact.

We Work on

Industrial Manipulator

Vision based pick & Drop Operation End-effector.Can perform its objectives even as the details of the environment change.

Campus Bus

Fully autonomous driving with vision based obstacle avoidance. Can be deployed in unknown environments.

Whegged Robot

For mining exploration, space missions, and military operations, providing stability on rough terrain.

Mechanical Ventilator

For the COVID-19 response, in times of emergency when existing facilities were not enough, to fulfill the needs of the rapidly deteriorating situation.

Image Stabilization

A platform to improve the visual output of the video-feed from any camera ranging from a smart phone app to camera fixed on mobile robots.

1. CPU Processing Server

Rs. 2.5 Million
NVIDIA DGA Server
96 times faster Deep Learning machine
170 teraflops of processing

2. 3D Printer

Rs. 1.5 Million
Ultimaker S3
Rapid prototyping with high precision
PCB design

3. Motion Capture System

Rs. 2.5 Million
Cutting-edge research
Real-time testing of algorithms

Achievements

Microsoft Imagine Cup Regional Winner (South Region) - Muhammad Rafi & Kabisha Anwar

This project was focuses on a semi-autonomous robot, WhegRoach, Capable of taking smart decisions and giving internal view of the rescues team, so that they can go safely and perform their respective tasks. The design of the robot enables it to overcome different obstacles and move stably on rough terrains. It can be used for space exploration, crops field, SAR tasks and mining areas to perform perilous tasks.

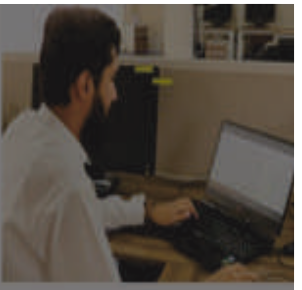
Our Team

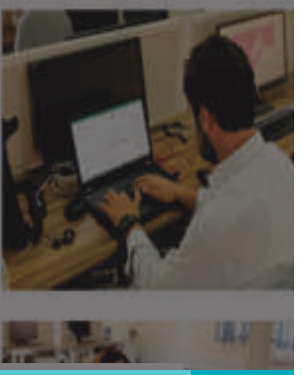
Dr. Anayar Ullah
Director/PI

Hamza Anwar
Research Associate

Ehtisham Ahmed
Research Associate

Spatial Decision Support System Lab - SDSS





Spatial Decision Support System (SDSS) is a part of the National Center of GIS and Space Applications (NCGSA). The National Center of GIS and Space Applications (NCGSA) materializes all domains of space science, technology, and its applications, starting from space awareness & education to astronomy and astrophysics, satellite development to satellite navigation and to remote sensing & GIS applications. The NCGSA envisages working in three domains, namely, Space Science, Space Technology, and Space Applications.

Established under the National Centre for GIS & Space Applications (NCGSA)

A substantial rise in public demand for efficient services and systems can only be met with efficient decision support systems from the government. One way to handle this restless onslaught of demographic pressure is to improve performance of several systems and services available for public by making use of spatial data. The availability of data along with an effective decision support system can help in the understanding of problems and the possible outcomes of decisions. In addition, the availability of spatial data-based decision support systems can greatly improve policy and plan making process while reducing time and human resources. Geographic Information Systems (GIS) is a well-known technology used to manage spatial databases. Our research group envisions contributing in the area of Spatial Decision Support Systems (SDSS) that deals with spatial dimension through digitized geo-referenced spatial databases.

NCGSA
NATIONAL CENTER OF GIS & SPACE APPLICATIONS

SPATIAL DECISION SUPPORT SYSTEM
SDSS
BUITEMS

SPATIAL DECISION SUPPORT SYSTEM (SDSS) LAB, BUITEMS

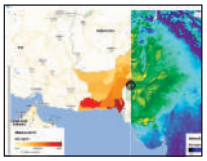
The SDSS Lab established at BUITEMS, Quetta, is a subsidiary of the National Center for GIS & Space Applications (NCGSA). Decision Support Systems (DSS) deals with spatial dimension through digitized geo-referenced spatial databases using geo-spatial analysis and machine learning tools.

- Crime Management
- Health Resource Management
- Mineral Mapping and Exploration

Domains Covered by SDSS Lab

1. Geo Forensic & Geo Health
2. Mineral Inventory

Major Achievements
Eco-Health (Web Application)



Eco-Health (Web Application), for visualizing environmental variables across multiple diseases and for monitoring diseases geographically and environmentally, and to plan for future mitigations.

Forest Watch

Application to monitor deforestation and tree diseases in a specific area, the Forest Department can use Forest Watch, a mobile application created by SDSS Lab in partnership with SBBU-Dir.

KPIs

Academic Research & Development:
- Literature/Survey/Technical Reports
- Review/Conference/Journal papers
- BS/MS Research Thesis Completion

Software Solution Development:
- Development of Applications & Software's
- Conceptual Designs, Prototypes & codes
- Algorithm development, Modelling & Simulation
- Tools & Techniques development

Hardware Solution Development:
- Training kit development

Model & Maps Development:
- Models Generation/ Up gradation
- GIS/Maps Development & Up-gradation

Capacity Building:
- Space Education & Awareness sessions
- Trainings, Workshops, Seminars & Webinars

Our Team

Principal Investigator
Prof. Dr. Bakhtiar Kasi

Co-Principal Investigator
Dr. Shafiullah

BDM
Arsalan Ali Cheema

Research Associate
Penha Tahir

Research Assistant
Muzaffar Ali

Research Assistant
Muhammad Amjad

Computer Operator
Zohaib Durrani

Computer Operator
Muhammad Talha

Collaborators

Academic Collaborators/Partners:

1. Dr. Shabeh-ul-Hassan (University of Hamburg)
2. Dr. Hammad Gilani (International Water Management Institute)
3. Dr. Sajid Ghaffar (Institute of Space Technology, Islamabad)
4. Dr. Abu-bakar (LUMS-NCRA)
5. Dr. Laima Khan (University of Leeds, United Kingdom)
6. National Institute of Disaster Management
7. National Institute of Management Sceinces (NIMS)

Sectoral Collaborators/Partners:

1. Provincial Health Directorate, Govt. of Balochistan
2. World Health Organization (WHO), Balochistan
3. Emergency Operations Center (EOC), Balochistan
4. Expanded Programme on Immunization (EPI), Balochistan
5. Governance & Policy Project, Balochistan
6. Forest and Wildlife Dept., Govt. of KPK
7. FIA Cyber Crime Wing, Balochistan.
8. Data Command & Communication Center (D3C), IG Office, Quetta

SDGs Covered by SDSS Lab

Fields of study

Information and Communication Technology is continuously restructuring our world!

The BUITEMS Advantage: **Extensive range of programs**

Welcome to the Faculty of Information and Communication Technology (ICT) at BUITEMS, where we are committed to providing our students with an exceptional education and preparing them for success in the fast-paced, ever-changing world of technology. Our faculty is made up of experts in their fields, with years of industry experience and a passion for teaching and research. At BUITEMS, we offer a wide range of degree programs in some of the most sought-after fields in the world today. Our BS, MS, and PhD programs in Computer Science, Electrical Engineering, Computer Engineering, Software Engineering, Electronic Engineering, and Information Technology are designed to equip our graduates with the knowledge and skills they need to thrive in their chosen careers .Our state-of-the-art labs and facilities are equipped with the latest technology, providing our students with hands-on experience and practical skills that are highly valued by employers. We believe that practical experience is essential to a well-rounded education, and we are proud to offer our students the opportunity to work on real-world projects that help to solve important problems and improve people's lives. Our faculty members are dedicated to providing our students with a rigorous and challenging education, but also to supporting them in their academic and personal growth. We understand that our students are the future of the technology industry, and we take our responsibility to prepare them for success very seriously.

In addition to our excellent degree programs, our research programs are at the forefront of technological innovation. Our faculty members are engaged in cutting-edge research that is solving real-world problems and shaping the future of technology. We believe that research is an essential component of a great university, and we are proud to be contributing to the advancement of knowledge in our fields.

The fields of Information and Communication Technology are vital to the future of our society and our economy. The job prospects for our graduates are excellent, with a wide range of career paths available in industries such as software development, telecommunications, electronics, and more. Our graduates are highly sought after by employers both in Pakistan and around the world, and we are proud to have a strong record of success in placing our students in rewarding and fulfilling careers. At BUITEMS, we believe that our students are capable of achieving great things, and we are committed to helping them reach their full potential. We invite you to join us and become part of our community of innovative thinkers, problem-solvers, and leaders in the world of technology.

Dr. Bakhtiar Khan Kasi
Dean FICT

Computer Engineering

Computer engineering is a discipline that embodies the science and technology of design, construction, implementation, and maintenance of software and hardware components of modern computing systems and computer-controlled equipment.

Computer Engineering at BUITEMS

At the Department of Computer Engineering, students are encouraged to hone the right mix of expertise covering both software programming and hardware design and implementation to be able to design and utilize computing systems for industrial automation (to handle different processes and machinery in an industry to replace a human being), embedded systems (found in devices from a digital wristwatch to space shuttle), robotics (to use machines to perform tasks done traditionally by human beings), multimedia (to combine and use multiple media formats i.e. text, audio, still images, animation, video and interactivity together), and artificial intelligence (to design and program machines to think like humans and mimic their actions).

Programs Offered in Computer Engineering

We offer following programs in Computer Engineering

- Four years BSCE
- Two years MSCE

Facilities and work experience

Our students are provided with computer laboratories equipped with latest technologies. Besides, students can benefit from internships and study tours offered by the department.

Workshops and guest talks are arranged on a regular basis to increase practical knowledge of students. Students get the chance to work as an assistant to the senior faculty members where they get experience of research and teaching.

Program Educational Objectives (PEOs)

The department of Computer Engineering at BUITEMS envisions to produce computer engineers who will:

PEO-01: Exercise thoroughness in design and implementation of computing systems by carefully applying computer engineering theory and principles to provide contemporary solutions to challenging problems of the world.

PEO-02: Lead technological innovation and development, with a broader understanding of social and economic impact, by utilizing diverse workforce.

PEO-03: Uphold the tenets of their profession and to adhere to the codes of professional practice and ethics of their field.

PEO-04: Demonstrate life-long learning by engaging themselves in continuous professional development and advanced education, and utilize critical thinking skills in making planning and design decisions.

Fact file

Code
BSCE

Duration
Four years
(8 Semesters)

PEC Recognised

Program Vision

To produce professional Computer Engineers who can use knowledge, technical expertise, and entrepreneurial abilities to compete with upcoming challenges in computing fields while adhering to highest standards of morality and ethics.

Program Mission

Our mission is to prepare graduates to accept and full responsibilities across a broad spectrum of activities, including analysis, synthesis and design of the modern computing systems, serve government and industry in various roles and contribute in academia and research.

Scheme of study

Semester 1

Computer Fundamentals
Applied physics
Calculus & Analytical Geometry
Islamic Studies and Ethics
Reading and Writing Skills (Eng.-I)
Workshop Practice
Occupational Health and Safety

Semester 2

Computer Programming
Linear Algebra
Electronic Circuits and Devices
Communication and Presentation Skills
Linear Circuit Analysis
Pakistan Studies and Global Perspective

Semester 3

Computer Comm. and Networks
Object-Oriented Programming
Complex Variables and Transforms
Digital Logic Design
Discrete Structure

Semester 4

Data Structures and Algorithms
Signals & Systems
Computer Architecture and Organization
Differential Equations
Management Sciences Elective - I

Semester 5

Digital Signal Processing
Microprocessors and Interfacing
Operating Systems
Social Science Elective - I
Technical Writing

Semester 6

Database Management Systems
Digital System Design
Computer Engineering Depth Electives-I
Computer Engineering Depth Electives II
Probability Methods in Engineering

Semester 7

Multi-Disciplinary Engineering Electives - I
Software Engineering
Computer Engineering Depth Electives - III
Numerical Methods
Senior Design Project-I

Semester 8

Social Science Elective- II
Computer Engineering Depth Electives - IV
Management Sciences - Elective II
Senior Design Project-II
Multi-Disciplinary Engineering Electives - II

Teaching in this program is delivered through a combination of lectures and practical classes. Students typically complete three assignments and two quizzes per subject, and some subjects also require presentations. Practical work is assessed separately.

BS Program Summary

Total Credit hours: 134

Contact Us

Chairperson:
Dr. Sibghatullah Bazai
(Ext. 712)

UAN: +92 (81) 111 717 111

www.buitms.edu.pk/

Essentials

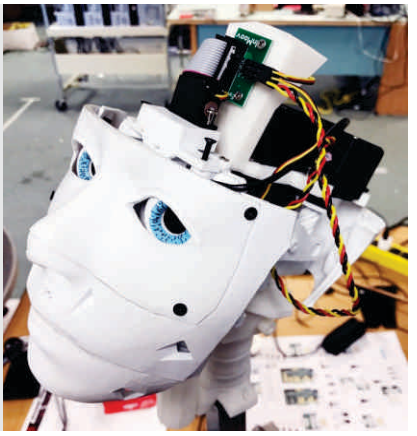
F.Sc (Pre-Engineering) / ICS with Mathematics & Physics from any recognized board or equivalent with at least 60% marks.

OR

Diploma of Associate Engineer (DAE) in the relevant field securing at least 60% marks.

Admission Test

Admission is contingent upon passing the admission test.



Graduate Program Information

The Department offers the Master of Science (MS) degree in computer engineering. The Department presently has active research groups in the following areas.

- Computer Forensics n GeoForensic
- Communication System Group (CSG)
- Computational Intelligence Group(CIG)
- Wireless & Sensor Networks (WSN)
- Distributed & Networked Systems (DNS)
- Information security (IS)

Summary of Basic Degree Requirements

- At least 9 credit hours of core Graduate level courses.
- At least 15 credit hours of advanced elective graduate level courses.
- At least 6 credit hours for Master's Thesis.

Core Courses

- Advanced Computer System Architecture
- Advanced Operating Systems
- Advance Computer Network

Elective Courses Domains

- Computer Network and Distributed Computing
- Mobile and Wireless Networks
- Parallel and Distributed Computing
- Cluster and Cloud Computing
- Internet of Things
- Cyber Security
- Wireless Networks Security
- Cyber Warfare
- IoT Security
- Web Application Security
- Operating System Security
- Embedded Systems Security
- Artifcial Intelligence and Deep Learning
- Advanced Artificial Intelligenc
- Fuzzy Logic & Neural Networks
- Machine Learning
- Advance Numerical and Simulation Techniques
- Analysis of Stochastic Processes

"It made me what I am today—a place that enabled me to struggle, progress, and work hard for a better life. I'm proud of it!"

Muhammad Jahanzaib
Alumnus

MS Program Summary

Total Credit hours: 30

Contact Us

Graduate Coordinator:
Dr. Syed Mudassar Hussain
(Ext. 411)

UAN: +92 (81) 111 717 111

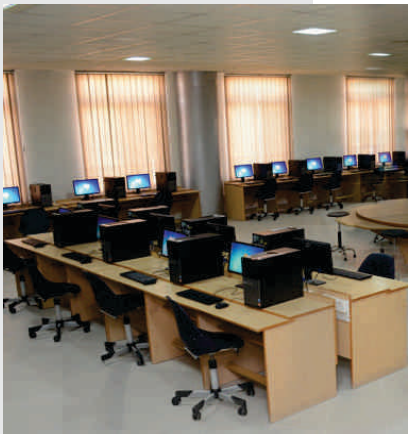
www.buitms.edu.pk/

Essentials

BS(CE) 4 years Degree Program or equivalent

Admission Test

Graduate Assessment Test (GAT General) scores are required for admission consideration.



Computer Science

Computer science is the study of the theory, experimentation, and engineering that form the basis for the design and use of computers. It is the scientific and practical approach to computation and its applications and the systematic study of the feasibility, structure, expression, and mechanization of the methodical procedures (or algorithms) that underlie the acquisition, representation, processing, storage, communication of, and access to information.

Computer Science is the application of a systematic, disciplined and quantifiable approach to the design, development, operation, and maintenance of software systems. It is in fact the practice of designing and implementing large, reliable, efficient and economical software by applying the principles and practices of engineering. The program aims to train students in all aspects of software life cycle from specification through analysis and design to testing, maintenance and evaluation of software product.

Computer Science at BUITEMS

The Department of Computer Science at BUITEMS is one of the pioneer departments that was founded in 2002 as an undergraduate program along with the inauguration of the University. Later, the department expanded its offerings to MS in 2006 and PhD in 2014 respectively. Computer Science Department of BUITEMS aspires to provide a comprehensive computational education environment that inspires curiosity, creativity and innovation for the enhancement of society in a positive and meaningful way. We, at Department of Computer Science, are committed to impart the fundamental and highly technical knowledge on computational issues involving computer communication, networking, security, software development, database management systems, data sciences, programming and to examine the features, attributes, practical implications, technical issues, and concepts in these areas.

Programs offered in Computer Science

We offer the following programs in Computer Science

- Four years BSCS
- Master of Science (MSCS)
- Doctor of Philosophy in Computer Science.

Achievements

BUITEMS has clinched fourth position among top ranking universities of the country in Computer Science. The ranking was based on the number of students, research productivity and quality, innovation and knowledge transfer, infrastructure, annual graduate output, international collaborations, student satisfaction and financial health of the institution. Our course is accredited by National Computing Education Accreditation Council (NCEAC) and categorized in 'w' highest category.

Fact file

Code
BSCS

Duration
Four years
(8 Semesters)

NCEAC Recognised

Program Mission

Our mission is to become intellectual forefronts of computer science that nurtures its students and faculty to address real life problems by applying sound computing knowledge and participating in cutting edge innovative research in scientific, economic and social paradigms.

Scheme of study

Semester 1

Introduction to ICT
Programming Fundamentals
English Composition & Comprehension
Calculus & Analytical Geometry
Islamic Studies
Applied Physics

Semester 2

Object Oriented Programming
Communication and Presentation Skills
CS Supporting 1
Discrete Structures
Digital Logic & Design

Semester 3

Data Structures & Algorithms
Software Engineering
Linear Algebra
Computer Organization & Assembly Language
University Elective – 1

Semester 4

Computer Networks
Operating Systems
University Elective 2
Theory of Automata
CS Supporting 2

Semester 5

Artificial Intelligence
Database Systems
Technical and Business Writing
Compiler Construction
Probability and Statistics

Semester 6

Track Elective 1
Track Elective 2
Design & Analysis of Algorithms
CS Supporting 3
University Elective 3
University Elective 4 – Social Service
Track Elective 3

Semester 7

Track Elective 4
Parallel & Distributed Computing
Final Year Project – I
Information Security
Professional Practices

Semester 8

Track Elective 5
Track Elective 6
Final Year Project – II
University Elective 5
Pakistan Studies

Teaching in this program is delivered through a combination of lectures and practical classes. Students typically complete three assignments and two quizzes per subject, and some subjects also require presentations. Practical work is assessed separately.

BS Program Summary

Total Credit hours: 133

Contact Us

Chairperson:
Dr. Mehmood Baryalai
(Ext. 710)"

UAN: +92 (81) 111 717 111

www.buitms.edu.pk/

Essentials

BUITEMS adhere to the admission criteria/policy of HEC/NCEAC for BS CS intake. The minimum requirements for admission in BSCS program are at least 50% marks in Intermediate (HSSC) examination with Mathematics

OR

Equivalent qualification with Mathematics certified by IBCC

Admission Test

Admission is contingent upon passing the admission test.

Graduate Program Information

The Department offers the Master of Science (MS) degree in computer science. The Department presently has active research groups in the following areas

- Communication Systems Group (CSG)
- Computational Intelligence Group (CIG)
- Information Retrieval & Processing (IRP)
- Wireless & Sensor Networks (WSN)
- System Security Group (SSG)
- Distributed & Networked Systems (DNS)
- Machine Learning and Big Data

Summary of Basic Degree Requirements

- At least 24 hours of graduate level course work.
- At least 6 hours Master's Thesis.

Core Courses

Advance theory of computation
Advance Algorithm Analysis
Advance Operating System
Advance Computer Architecture

Elective Courses Domains

Software Engineering
Artificial Intelligence
Information Management
Human Computer Interaction
Computer Science Education
Network Performance Evaluation

"I have to admit I was very nervous on my first day but there was no reason at all to be so. All the students, teachers, and other people I´ve met, everyone is so friendly, helpful and supportive, especially in the first time. And even after you got used to the basic daily procedures, there is no pressure either from University works or from the teachers."

Muhammad Fayzan Malik
Alumnus

MS Program Summary

Total Credit hours: 30

Contact Us

Graduate Coordinator:
Dr. Syed Mudassar Hussain
(Ext. 411)

UAN: +92 (81) 111 717 111

www.buitms.edu.pk/

Essentials

BS(CS) 4 years Degree Program or equivalent

Admission Test

Graduate Assessment Test (GAT General) scores are required for admission consideration.

Electrical Engineering

Electrical engineering is one of the dynamic fields which is continually introducing new technologies to benefit the society.

Electrical Engineering at BUITEMS

The Department of Electrical Engineering at BUITEMS was founded in 2012, initially offering an undergraduate degree in Electrical Engineering with a focus on Electric Power Systems Engineering. The motivation of the program is to offer quality education opportunities, produce qualified engineers for the growing power sector of the country. The department's undergraduate program has been accredited by Pakistan Engineering Council (PEC) under Level-II which is a recognition of quality education. The quality and success of the undergraduate program have captured the attention of practising engineers. The practising engineers showed interest in continuing studies, improve their skills, and conduct research at the department; therefore, the department initiated a graduate (MS) program in Spring 2014.

Programs offered in Electrical Engineering

We offer following programs in Electrical Engineering

- BS ELE
- MS ELE
- PhD ELE

Program Educational Objectives (PEOs)

The graduates of the program will develop into professional engineers who will:

PEO-01: Demonstrate professional competence in the field of electrical engineering through in-depth knowledge and skills in the area as well as through contemporary interdisciplinary studies

PEO-02: Engage in continual professional development through effective communication, teamwork, and lifelong learning.

PEO-03: Depict professional integrity, practice, and implement ethics, and social responsibility to the global community.

Fact file

Code
BSELE

Duration
Four years
(8 Semesters)

Pakistan Engineering Council (PEC) Recognised

Program Mission

The department of electrical engineering imparts quality learning in the field of electrical engineering, promotes excellence in research & innovation, and plays a leading role in the economic, social, and cultural development.

List of Computing Electives

For the computing elective course, the following courses are recommended:

- Data Structures and Algorithms
- Databases
- Artificial Intelligence
- Machine Learning
- Mobile Application Development
- Web Application Development
- Software Engineering
- Network Security

or any related course appropriate for the program.

List of Breadth and Depth Elective Courses in Electrical Engineering (Power Systems Engineering):

- Instrumentation and Measurements (Breadth Core I)
- Power Distribution and Utilization (Breadth Core II)
- Power System Analysis
- Advanced Electrical Machines
- Power Generation
- Electrical Power Transmission
- Power Electronics
- Power System Protection
- Power System Operation & Control
- Electrical Machine Design and Maintenance
- High Voltage Engineering
- Renewable Energy Systems
- Digital Signal Processing
- Industrial Drives
- FACTS and HVDC Transmission
- Data Communication
- Smart Grid

or any related course appropriate for the program.

List of Breadth and Depth Elective Courses in Electrical Engineering (Communication/ Telecommunication Engineering)

- Computer Communication Networks (Breadth Core I)
- Electronic Circuit Design (Breadth Core II)
- Digital Communications
- Microwave Engineering
- Antennas and Wave Propagation
- Digital Signal Processing
- Instrumentation and Measurements
- Transmission and Switching systems
- Wireless and Mobile Communications
- Data Communication
- Satellite Communication
- Optical Communication
- RF and Microwave Engineering
- Navigation and Radar Systems
- Digital Image Processing
- Emerging Wireless Technologies and RF Planning
- Telecommunication Policies and Standards
- Multimedia Systems

List of Computing Electives

- Telecom Traffic Engineering
- Broadband and Next Generation Networks
- Network Security
- Radar Systems Engineering
- Telecommunication Network Management

or any related course appropriate for the program.

List of Interdisciplinary Elective Engineering (IDEE) Courses

- Basic Mechanical Engineering
- Surveying and Leveling
- Operating Systems
- VLSI Design
- ASIC/FPGA Design
- Database Management Systems
- Computer Communication Network
- Artificial Intelligence
- Big Data Analytics
- Machine Learning
- Computer Vision
- Computer Modelling and Simulations
- Thermodynamics
- Mechanics of Materials
- General Surveying
- Construction Materials
- Manufacturing Processes
- Engineering Statics & Dynamics
- Introduction to Environmental Engineering
- Environmental Economics
- Energy and Environment
- Environmental Laws and Policies

or any related course appropriate for the program.

MS Program Summary

Total Credit hours:	30

Contact Us

Graduate Coordinator:
Dr. Syed Mudassar Hussain
(Ext. 411)

UAN: +92 (81) 111 717 111

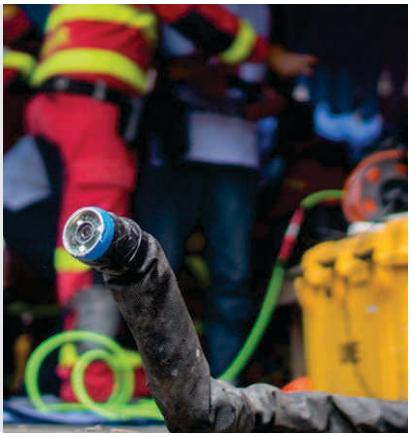
www.buitms.edu.pk/

Essentials

BS(EE) 4 years Degree Program
or equivalent

Admission Test

Graduate Assessment Test (GAT General) scores are required for admission consideration.



Scheme of study

Semester 1

Reading and Writing Skills
Calculus and Analytical Geometry
Computing Fundamentals
Islamic Studies / Ethics
Applied Physics
Engineering Drawing

Semester 2

Differential Equations
Linear Circuit Analysis
Workshop Practices
Pakistan Studies
Programming Fundamentals
Electronic Devices and Circuits

Semester 3

Linear Algebra
Communication & Presentation Skills
Digital Logic Design
Complex Variables and & Transforms
Electrical Network Analysis

Semester 4

Electromagnetic Field Theory
Embedded Systems
Signal & Systems
Probability Methods in Engineering
Social Sciences Elective - I

Semester 5

Electrical Machines
Technical Report Writing
Breadth Core - I
Computing Elective
Natural Sciences Elective

Semester 6

Communication Systems
Linear Control Systems
Breadth Core - II
Social Sciences Elective - II
IDEE - I

Semester 7

Depth Elective - I
Depth Elective - II
Depth Elective - III
Management Sciences Elective - I
Senior Design Project-I

Semester 8

Depth Elective - IV
Depth Elective - V
Management Sciences Elective - II
IDEE - II
Senior Design Project - II

Teaching in this program is delivered through a combination of lectures and practical classes. Students typically complete three assignments and two quizzes per subject, and some subjects also require presentations. Practical work is assessed separately.

BS Program Summary

Total Credit hours: 136

Contact Us

Chairperson:
Engr. Dr. Surat Khan
(Ext. 416)

UAN: +92 (81) 111 717 111

www.buitms.edu.pk/

Essentials

F.Sc (Pre-Engineering) / ICS with Mathematics & Physics from any recognized board or equivalent with at least 60% marks.

OR

Diploma of Associate Engineer (DAE) in the relevant field securing at least 60% marks.

Admission Test

Admission is contingent upon passing the admission test.

Electronic Engineering

The Department of Electronic Engineering at BUITEMS is dedicated to addressing the future technological requirements of both the industry and society as a whole. The department's research efforts encompass a wide range of cutting-edge areas, such as Robotics, Artificial Intelligence, Digital Manufacturing, Automated and Electric Vehicles, Information Security, Wireless Networks, and Nano-Technologies. By focusing on these fields, the department strives to stay at the forefront of innovation and make significant contributions to the advancement of technology and its positive impact on our world.

Electronic Engineering at BUITEMS

The Electronic Engineering Department's program was established in 2003, and since then, it has been at the forefront of providing quality education and training to the youth of Pakistan in general and Balochistan in particular, empowering them with knowledge of future technologies. The department's graduates have excelled in various professional domains, finding employment opportunities in esteemed National and International Research Institutions, Telecom Companies, Banks and Multinationals. They have also made significant contributions to diverse industries, including Automotive, Textile, Biomedical, Petrochemical, and other Manufacturing sectors. Furthermore, many of our graduates have embraced entrepreneurship and freelancing, showcasing their versatility and creativity in the ever-evolving world of technology.

Our students enjoy access to state-of-the-art facilities and laboratories that enhance their learning experience. These include well-equipped Computer Labs, Basic Electronics Lab, Digital System Lab, Microprocessor Lab, Basic Telecommunication Lab, PCB Lab, Control Automotive and Robotics Lab, Laboratory of Instrumentation & Industrial Automation, and Embedded System Lab. These cutting-edge facilities are equipped with the latest technologies, providing our students with hands-on experience and a solid foundation in their respective fields.

In addition to the exceptional lab facilities, our department offers valuable opportunities for students to further their practical knowledge. Internship programs and study tours organized by the department enable students to gain real-world experience and exposure to industry practices.To complement their classroom learning, we regularly organize workshops and invite guest speakers to share their expertise. These events serve as platforms to broaden the practical knowledge of our students, keeping them abreast of the latest trends and advancements in the field of electronic engineering. By offering a well-rounded education that combines theoretical understanding with practical application, we prepare our students to excel in their future careers.

Programs offered in Electronic Engineering

We offer following programs in Electronic Engineering

- Four years BS (EE)
- Two years MS (EE)

Program Educational Objectives (PEOs)

The graduates of the Electronic Engineering Department will:

PEO-01: Contribute their knowledge for the betterment of humanity in general and society in particular.

PEO-02: Impart their analytical and innovation skills for the enhancement of research, development, and production of Electronic Systems.

PEO-03: Work efficiently in teams or individually, integrating, effectively in diverse cultures and environments.

Fact file

Code
BSEE

Duration
Four years
(8 Semesters)

Pakistan Engineering Council (PEC) Recognised

Program Mission

Our mission is to produce highly skilled engineers who can contribute effectively in the field of electronic engineering. Equipping them with analytic skills and innovation, so that they can contribute in the enhancement of research, development and production.

Scheme of study

Semester 1

Functional English
Calculus and Analytical Geometry
Linear Circuit Analysis
Applied Physics
Computer Fundamentals & Programming
Workshop Practice

Semester 2

Communication Skills
Islamic Studies
Engineering Drawing
Pakistan Studies
Linear Algebra
Electronic Devices & Circuits

Semester 3

Differential Equations
Instrumentation and Measurement
Digital Logic Design
Probability and Random Variables
Electronic Circuit Design

Semester 4

Complex Variables and Transform
Technical Report Writing and Presentation skills
Analog Integrated Electronics
Electrical Network Analysis
Microprocessors and Microcontrollers

Semester 5

Electrical Machines
Object Oriented Programming for Engineers
Control Systems
Signals and Systems
Data Communication & Networks

Semester 6

Power Electronics
Numerical Analysis
IDEE-I
Communication System
Management Elective-I

Semester 7

EE Elective-I
Social Science Elective-I
EE Elective-II
Management Elective-II
Industrial Electronics
Final Year Project Part-I

Semester 8

EE Elective-III
EE Elective-IV
Digital Signal Processing
Social Science Elective-II
IDEE-II
Final Year Project Part-II

Teaching in this program is delivered through a combination of lectures and practical classes. Students typically complete three assignments and two quizzes per subject, and some subjects also require presentations. Practical work is assessed separately.

BS Program Summary

Total Credit hours: 136

Contact Us

Chairperson:
Dr. Muhammad Ayub Tareen
(Ext. 401)

UAN: +92 (81) 111 717 111

www.buitms.edu.pk/

Essentials

F.Sc (Pre-Engineering) / ICS with Mathematics & Physics from any recognized board or equivalent with at least 60% marks.

OR

Diploma of Associate Engineer (DAE) in the relevant field securing at least 60% marks.

Admission Test

Admission is contingent upon passing the admission test.

Graduate Program Information

The Department offers the Master of Science (MS) degree in Electronic Engineering.

Core Courses

Linear Control
Stochastic Processes

Elective Courses Domains

Electronics and embedded systems
Advance DSP
Advanced Integrated Electronics
Advanced Computer Architecture
Advance Industrial Electronics
Advanced VLSI Design
Nano Electronics
MEMS Sensor Design
3D Printing
Advanced Opto Electronics
Advanced FPGA Design
Advanced Instrumentation Systems
Multirate Systems And Filter Banks
Advanced Machine Drives
Switched Mode Converter Analysis And Design
Advanced Power Electronics
Advanced Image Processing
Control systems
Modelling And Simulations
Multivariable Control
Optimal Control
Nonlinear Control
Digital Control Systems
Advanced Control Systems
Adaptive Control
Stochastic Control
Model Predictive Control
Robotics
Advanced IPC
Intelligent Control
Advanced Topics In Control Systems
RF Electronics
Advanced Microwave Engineering
Advanced Antenna Design
Advanced RF Electronics
Advanced Electromagnetic Theory
Transmission Lines
Advanced Concepts In RADAR Applications
Microwave-Based Testing
Microwave integrated circuit design
Communication systems
Advanced Digital Communication
Cellular And Mobile Communication
Stochastic Processes
Information And Coding Theory
Advanced Topics In Communication Systems
Advanced Mobile Networks
Advanced Optical Comm.
Advance Satellite Comm.
Radio Wave Propagation
Management Elective
Engineering management
Research methodology
Project management

MS Program Summary

Total Credit hours: 30

Contact Us

Graduate Coordinator:
Dr. Syed Mudassar Hussain
(Ext. 411)

UAN: +92 (81) 111 717 111

www.buitms.edu.pk/

Essentials

BS(EE) 4 years Degree Program
or equivalent

Admission Test

Graduate Assessment Test (GAT General) scores are required for admission consideration.

Information Technology

Information Technology ensures that the organization's systems, networks, data, and applications link up and operate appropriately. An IT professional handles significant areas: deploys and maintains business applications, services, and infrastructure (servers, networks, storage)

Information Technology at BUITEMS

The department of Information technology at BUITEMS aspires to equip students with a grasp of knowledge that can enable them to contribute to advancing technologies. The Department of Information Technology at BUITEMS was founded in 2007 as an undergraduate program and later expanded its offerings to MS in Information Technology. The department has a growing, vibrant, research-oriented faculty who take great pride in research and education. We, at the Department of Information Technology, are committed to imparting quality education in all horizons of IT, including fields of computer communication, networking, security, software development, database management systems, programming, telecommunication management, artificial intelligence, enterprise systems, and to examine the technical issues related to technology implementation. Ranked by Higher Education Commission (HEC) as one of the top undergraduate programs in the field of IT in the country, the program prepares the students with a sound knowledge base of programming, systems analysis, and design, business telecommunications, and database management with a concentration in a variety of areas. Our graduates are expected to have well-rounded and a wide range of knowledge and competence in the sector of information science and technology. They are trained to work in the production, development, management, and maintenance of Technological systems, both for companies that produce information systems and computer networks and for companies, administrations, services, and laboratories that use them.

Programs offered in Information Technology

We offer the following programs in information technology

- Four years BSIT
- Two years MSIT

Objectives

- To give the students sound knowledge base of programming, systems analysis and design, business telecommunications, and database management with concentration in a variety of areas
- To produce graduates who have good rounding and a wide range of knowledge and competence in the sector of information science and technology
- To train students for work in the field of the production, development, management and maintenance of Technological systems, both for companies that produce information systems and computer networks, and for companies, administrations, services and laboratories that use them.

Achievements

BUITEMS has clinched fourth position among top ranking universities of the country in Computer Science and IT. The ranking was based on the number of students, research productivity and quality, innovation and knowledge transfer, infrastructure, annual graduate output, international collaborations, student satisfaction and financial health of the institution.

Fact file

Code
BSIT

Duration
Four years
(8 Semesters)

NCEAC Recognised

Program Mission

The mission of the Information Technology (IT) department is to equip students with state-of-the-art tools and technology for the management and analysis of IT infrastructure. Furthermore, it aims to train students to build and maintain effective, reliable, secure, and modern information systems to support organizational functions. The students must be well-versed in practical knowledge to serve society and the business community.

The Harvard Business Review coined the term information technology to make a distinction between purpose-built machines designed to perform a limited scope of functions, and general-purpose computing machines that could be programmed for various tasks.

Scheme of study

Semester 1

Introduction to ICT
Programming Fundamentals
English Composition & Comprehension
Basic Mathematics
Applied Physics
Islamic Studies

Semester 2

Object Oriented Programming
Communication & Presentation Skills
Calculus & Analytical Geometry
Pakistan Studies
University Elective - I
Discrete Structures

Semester 3

Data Structure & Algorithms
Database Systems
Computer Networks
University Elective II
Linear Algebra

Semester 4

Operating Systems
Web Technologies
Information Security
Probability & Statistics
University Elective III

Semester 5

Technical & Business Writing
System & Network Administration
Software Engineering
IT Infrastructure
DB Administration and Management

Semester 6

IT Supporting I
IT Elective I
Virtual Systems & Services
IT Project Management
IT Elective II

Semester 7

Final Year Project-I
IT Elective III
Cyber Security
IT Supporting II
IT Supporting III

Semester 8

Final Year Project-II
University Elective IV
IT Elective IV
IT Elective V
Professional Practices

Teaching in this program is delivered through a combination of lectures and practical classes. Students typically complete three assignments and two quizzes per subject, and some subjects also require presentations. Practical work is assessed separately.

BS Program Summary

Total Credit hours: 134

Contact Us

Chairperson:
Dr. Bushra Naeem
(Ext. 535)

UAN: +92 (81) 111 717 111

www.buitms.edu.pk/

Essentials

F.Sc/ICS with Mathematics from any recognized board or equivalent with at least 50% marks

OR

Diploma of Associate Engineer (DAE) in the relevant field securing at least 60% marks.

Admission Test

Admission is contingent upon passing the admission test.

Software Engineering

Software Engineering is the application of a systematic, disciplined, and quantifiable approach to the design, development, operation, and maintenance of software systems. It is the practice of designing and implementing large, reliable, efficient, and economical software by applying the principles and practices of engineering. The department aims to train students in all aspects of the software life cycle from specification through analysis and design to testing, maintenance, and evaluation of software products.

The BS Software Engineering program is designed to equip students with technical knowledge of the computing fundamentals, their mathematical foundations, and applications. A sequence of courses is designed so that theoretical study is amalgamated with practical on ground exercises. The pedagogy employed is 'learning by doing' through practical exercises. We believe that teaching should not be confined in between the class room walls, rather it should be activity driven combining lecturing, assigning real life projects and imparting soft skills.

Software Engineering at BUITEMS

The department of Software Engineering at BUITEMS was founded in 2012, as an undergraduate program with just three faculty members and fifty student. Today, the Software Engineering department has eight faculty members, most of whom are foreign qualified from the best universities in the world. The department has a growing, vibrant, research-oriented faculty who take great pride in research and in undergraduate education. We, at Department of Software Engineering, are committed to imparting quality education in the fields of computer communication, networking, security, software development, database management systems, programming, and to examine the features, attributes, technical issues, and concepts in these areas.

Programs Offered in Software Engineering

We offer the following programs in Software Engineering

- Four years BS-SE

Program Educational Objectives (PEOs)

The Software Engineering department aims to deliver a strong and coherent academic software engineering program for the development of skilled manpower. The curriculum is in line with PEC and HEC regulations to equip students with the latest skills for industry and research activities. Software Engineering graduates will be able to:

PEO-01: Utilize critical-thinking and engineering abilities to excel in the domain of Software Engineering.

PEO-02: Act as professional, ethical, and knowledgeable citizens.

PEO-03: Demonstrate leadership and work collaboratively in diverse teams/organizations.

Fact file

Code
BSSE

Duration
Four years
(8 Semesters)

PEC Recognised

Program Vision

To attain excellence in education and research at the national and international level and produce technically, professionally, and ethically sound graduates.

Program Mission

To produce the next-generation Software Engineering graduates who are fully equipped with concrete software engineering knowledge, real-world problem-solving skills, research abilities, excellent leadership qualities, and entrepreneurial abilities required for their future careers, and serving their communities.

Scheme of study

Semester 1

Information and Communication Technology (ICT)
Software Engineering Fundamentals
Reading and writing skills
Applied Physics
Psychology
Islamic Studies and Ethics
Occupational Health and Safety

Semester 2

Programming Fundamentals
Communication & Presentation Skills
Discrete Structures
Calculus & Analytical Geom.
Web Development (WD)
Pakistan Studies and Global Perspective

Semester 3

Object-Oriented Programming
Probability & Statistics
Computer Architecture and Logic Design
Linear Algebra
SE Elective I (Web Engineering (WE))

Semester 4

Data Structure & Algorithms
Software Design & Architecture
Human-Computer Interaction
SE Elective – II*
Principles of Management
Complex Variables and Transform

Semester 5

Software Construction and Development
Entreprenurship and Marketing
SE Elective – III*
Database Systems
Operating Systems

Semester 6

Software Quality Engineering
Computer Networks
Numerical Analysis
MDEE- I
Technical & Business Writing

Semester 7

Software Project Management
Information Security
Senior Design Project – I
SE Elective – IV*
Design and Analysis of Algorithms

Semester 8

MDEE-II
Senior Design Project – II
SE Elective – V*
SE Elective – VI*
Formal Methods in Software Engineering

Teaching in this program is delivered through a combination of lectures and practical classes. Students typically complete three assignments and two quizzes per subject, and some subjects also require presentations. Practical work is assessed separately.

BS Program Summary

Total Credit hours: 132

Contact Us

Chairperson:
Dr. Shah Marjan
(Ext. 412)

UAN: +92 (81) 111 717 111

www.buitms.edu.pk/

Essentials

F.Sc (Pre-Engineering) / ICS with Mathematics & Physics from any recognized board or equivalent with at least 60% marks.

OR

Diploma of Associate Engineer (DAE) in the relevant field securing at least 60% marks.

Admission Test

Admission is contingent upon passing the admission test.

Elective Courses

Software Engineering Economics
Mobile Application Development
Visual Programming
Information System Audit
Real-Time Systems
Graphic Designing
Big Data Analytics
Cloud Computing
Semantic Web
Systems Programming
Agent-Based Software Engineering
Management Information Systems
Data Encryption and Security
Natural Language Processing
Game Application Development
Multimedia Communications
Software Metrics
E-Commerce
Internet of Things
Machine Learning
Artificial Intelligence
Data **Visualization**
Data Encryption and Security
Computer Graphics
Software Testing
Computer Vision
Simulation and Modeling

Multidisciplinary Elective Courses

Embedded Systems
Internet of Things
Block chain
Image Processing

BS Program Summary

Total Credit hours: 132

Contact Us

Chairperson:
Dr. Shah Marjan
(Ext. 412)

UAN: +92 (81) 111 717 111

www.buitms.edu.pk/

Essentials

F.Sc (Pre-Engineering) / ICS with Mathematics & Physics from any recognized board or equivalent with at least 60% marks.

OR

Diploma of Associate Engineer (DAE) in the relevant field securing at least 60% marks.

Admission Test

Qualifying the admission test.

Faculty Profiles

FICT has the most remarkable interdisciplinary faculty. We have faculty working in a wide range of disciplines ranging in Computing, Embedded Systems, Communications and Wireless Networks, Electrical and Power Engineering and Technology Management. One of the notable features of our faculty is the high degree of scholarly collaboration between faculty who come from diverse fields with academic achievements from across the globe.

Bakhtiar Khan Kasi
Professor
Ph.D., University of Nebraska-Lincoln, USA
bakhtiar.kasi@buitms.edu.pk

Research Interests: Software Development and Coordination, Geographic Information Systems, Machine Learning, Natural Language Processing, Human Computer Interaction

Jan Muhammad
Professor
on Deputation
Ph.D., University of Glasgow, UK
jan.muhammad@buitms.edu.pk

Research Interests: Cloud Computing, Internet of Things (IoT), Mobile Cloud Computing, Security and Privacy, Edge Computing

Faizullah Khan Kakar
Professor
Ph.D., Beijing University of Posts & Telecommunications (BUPT) Beijing , China
faizullah.khan@buitms.edu.pk

Research Interests: Telecom Policies & Regulation, E-Government, Deep Learning

Faisal Ahmed Khan Kakar
Associate Professor
on Deputation
Ph.D., Georgia Institute of Technology, USA.
faisal.khan@buitms.edu.pk

Research Interests: Wireless Communications, Ad hoc Networks, Network Security

Zahid Rauf
Professor
Ph.D., University of Canterbury, New Zealand
zahid.rauf@buitms.edu.pk

Research Interests: MIMO Communication, UHF Antennas, Antenna Radiation Patterns, Antenna Feed, Automatic Repeat Request

Surat Khan
Professor
Electrical Engineering
Ph.D., Beijing University of Posts and Telecommunications (BUPT) PR China
surat.khan@buitms.edu.pk

Research Interests: Rotors, Finite Element Analysis, Permanent Magnet Machines, Torque, Magnetic Flux

Mumraiz Khan Kasi
Professor
on Deputation
Ph.D., University of Waikato, New Zealand
mumraiz.kasi@buitms.edu.pk

Research Interests: Wireless Sensor Networks, Information Systems, Deep Learning

Anayat Ullah
Associate Professor
Ph.D., University of Kassel, Germany
anayat.ullah@buitms.edu.pk

Research Interests: Optical MEMS, NEMS, Deep Reinforcement Learning

Mir Hamayoun Yousaf Shahwani
Associate Professor
on Deputation
Ph.D., Sungkyunkwan University,
South Korea.
hamayoun.yousaf@buitms.edu.pk

Research Interests: M2M, VANETs, D2D, Internet of Things (IoT)

Muhammad Akram
Associate Professor
Ph.D., Sungkyunkwan University,
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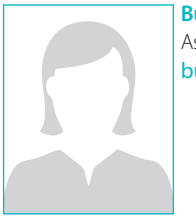

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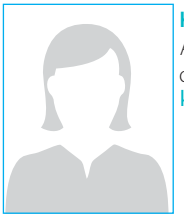

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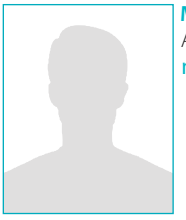

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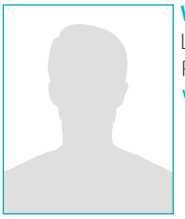

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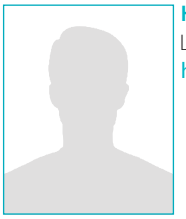

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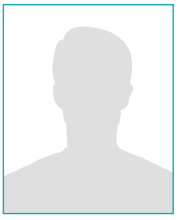

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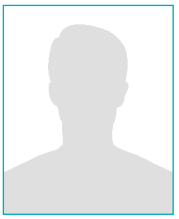

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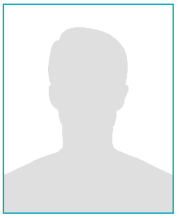

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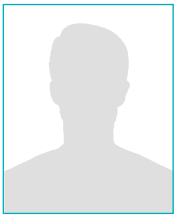

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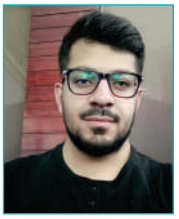

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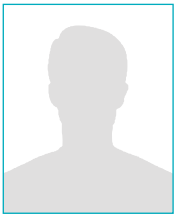

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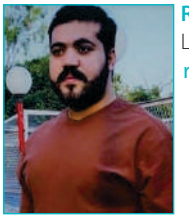

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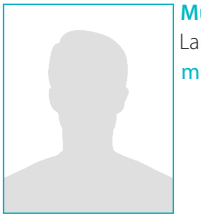

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Support:

We care for our students

Support to the students in every possible way is central to BUITEMS in general and FICT in particular.

The BUITEMS Advantage: **A supportive environment**

We take your career seriously, so we work to incorporate the qualities and abilities that employers require from your experience at the university, whether you're studying, volunteering, playing sport or taking part in work placement programs. The University has various services and a number of people to look after your academics and personal well-being, and support you throughout your time at BUITEMS. The hierarchy of support goes like this:

Class counselor

Class counselor is your first stop when you need any assistance. At FICT every class has a class counselor whose duties include supporting and helping students of his or her class in all kinds of academic and non-academic issues. They

- advise you on your subjects
- sometimes arrange supervisors for you
- help you in planning your progress

Departmental focal person

Every department has one focal person (also called CMS focal person) who is responsible for course registrations/enrollments, student records, results and all other issues related to the automated Campus Management Solution (CMS).

Chairperson's office

The Chairperson's office is available for assistance if you need help beyond the class counselor and the focal person's responsibility. The Chairperson and staff are available during office hours to listen to your problems. The office can also be accessed via email and telephone. The counselor and focal person may themselves consult the Chairperson's office to resolve your problem or query. The Chairperson and his or her office are always there to provide you full support with

a smile, and with all other issues related to the automated Campus Management Solution (CMS).

Faculty Coordinator

The Faculty Coordinator overlooks the academic and non-academic matters at the overall level of the Faculty of Information and Communication Technology. Occasionally, you might need to consult the Faculty Coordinator in case the Chairperson's office refers your request / problem further. One-to-one consultations can be scheduled to discuss to plan a successful learning and all kinds of issues can be advised by the coordinator.

Dean's office

The Dean's office is the highest office at the Faculty of Information and Communication Technology. Characterized by instant support with smile, the office sows and spreads courtesy and student support throughout the FICT. The office assists students in resolving problems that require the help of the Registrar's office, the Finance section and the office of Controller of Examinations, when the problem cannot be resolved at the Chairperson's or the Faculty Coordinator's office.

International Students Coordinator

Programs offered at FICT have been popular among the international students hailing from diverse nationalities. FICT has an International Students Coordinator dedicated to help the international students at the faculty. The international students coordinator helps students with a wide range of general assistance and support on issues that relate to international student admissions, cultural adjustment, academics, community relations, and campus wide assistance.

Disabled students

BUITEMS extends extra support to students with disabilities. The infrastructure at BUITEMS is developed keeping in consideration the needs of disabled students. The building facilities of FICT have the necessary access features for disabled students. Students with specific learning difficulties, physical/mobility, or visual impairments are fully supported; when needed, the instruction and evaluation are also adapted to the needs of disabled students.

Financial support

We boast with our financial support at BUITEMS where every third student receives financial assistance in the form of scholarships and fee waivers. The students receive scholarships and fee waivers under a wide range of programs. The waivers under a wide range of programs. The well as with the support of our friends including the USAID, PPL and many more. BUITEMS also offers the work and study program that not only supports students with full fee waiver but also provides an exposure to work environment; thus providing the opportunity of learning about practical life during their academic journey. The office of financial assistance at BUITEMS lets you know more about the financial support available at BUITEMS.

Career Services

We want you to be a success, both now and in the future. From the moment you arrive at BUITEMS, we can help you to enhance your CV, build your experience, and network with potential employers. The mission of BUITEMS Career Unit is to provide advice, services, programs, resources, to empower the students and alumni throughout their career development journey. We provide opportunities to assist our students in decision making, identifying skills, interests, and values to discover meaningful professional experiences. We partner with potential employers to offer internship and job opportunities.

We offer:

- Career Assessment
- Career Advising /Counseling
- Workshops and Panels
- Job Listing/Job Placement
- Mock Interviews with Feedback
- On-Campus Interviewing/Recruitment
- Internship Program
- Career Fairs

For further information, contact the
Career Support Team

081-2880511
kinza.khan@buitms.edu.pk
www.buitms.edu.pk

Travelling to BUITEMS

Quetta is the capital of the province of Balochistan. Being one of the important cities of Pakistan, Quetta is easily accessible by all modern means of transportation.

By car/bus

If you plan to travel to Quetta by road, you can take the major national highway leading to Quetta. The city is connected to Karachi, which is 686 km away, via the national highway N25. Quetta is connected to Lahore, 935 km away via N70 and N5, and 980 km via N50. Quetta is 911 km from Islamabad via N50 and 835 km from Peshawar via N50 and N55. Major bus service companies operate routes to Quetta from all major cities in the country.

By air

BUITEMS is located at a distance of 3 km from Quetta International Airport. The airport, served by various national and international carriers, offers continuous connections to other major cities in Pakistan and international destinations.

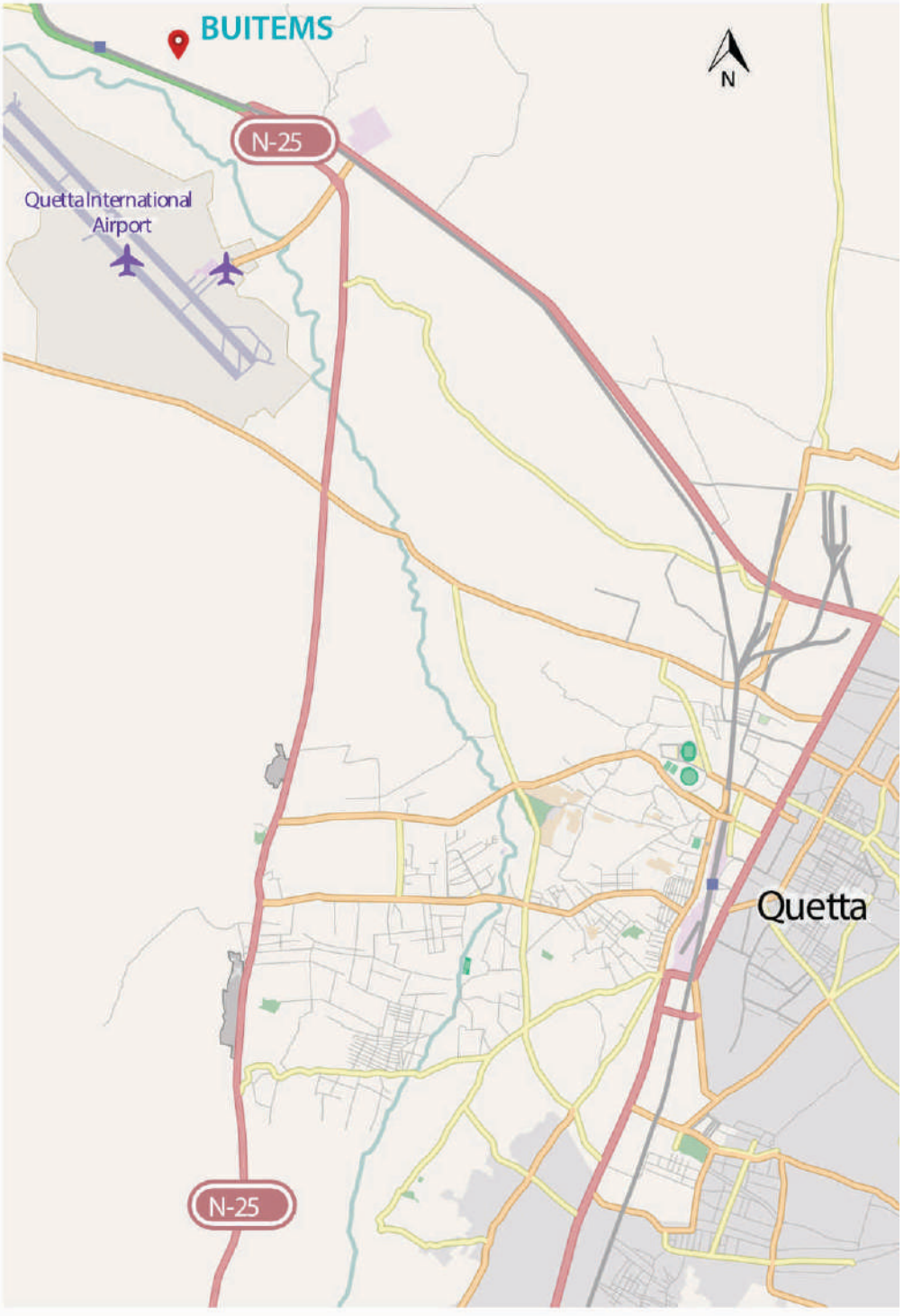
By train

Quetta Railway Station is one of the major railway stations in the country. The railway track, established in the 1890s during the British era, connects Quetta with the rest of the country. The extensive network of Pakistan Railways connects Quetta to Karachi in the south, by a 863 km track, Lahore in the northeast (1,170km) and Peshawar further northeast (1,587 km). Regular train service of Pakistan railways connects Quetta to the rest of the country,

Distances to BUITEMS

Karachi	686 km	Lahore	935 km
Islamabad	911 km	Peshawar	835 km
Multan	586 km	Hyderabad	712 km

City Map



Site Map


Markhor Auditorium
Takatu Lodges
Football Ground
Cafeteria
Sports Complex
Cricket Stadium
Central Mosque
Allama Iqbal Hall
Jinnah Hall
Admin Block
Civil Engg. & Arch. Block
Bachelors lodge
Sir Syed Ahmed Khan Block A
VC secretariat
Sir Syed Ahmed Khan Block B
New Library
Sir Syed Ahmed Khan Block C
CPEC Center / Pro VC secretariat
Management Sciences
Canteen
Gosha-e-Fikr-o-Nosh
CARL & SDSs Lab
National Incubation Center Quetta
Cafeteria
Parking
Cafeteria
CAD/CAM Research Lab
JICA Acedamic Hall
Expo Center
N

Credits

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Please note that every effort has been made to ensure the accuracy of the information in this Prospectus at the time of printing. However, changes and developments continually occur at the University, and alterations may occur to fees, courses, staff, and services described in this Prospectus. Please refer to the website (www.buitms.edu.pk) for relatively updated information.

BUITEMS reserves the right, without notice, to withdraw courses, amend fees, vary the content, and delivery of programs, etc., at any time before or after the applicant's admission. BUITEMS accepts no responsibility for any errors in the information described here.

BUITEMS

Quality & Excellence in Education