



FACULTY OF  
ENGINEERING &  
ARCHITECTURE  
**BUIITEMS**

UNDERGRADUATE PROSPECTUS 2026

## UNDERGRADUATE PROSPECTUS 2026

Quality and Excellence in Education

ISO 9001:2015  
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## DISCLAIMER

Every effort has been made to ensure that the information in this Undergraduate Prospectus 2026-27 is correct at the time of printing. The Faculty of Engineering & Architecture BUITEMS , however, reserves the right to make changes wherever and whenever necessary. In the event of inconsistency between the information contained in this prospectus and the BUITEMS's regulations or programs, or where an interpretation of the prospectus is required, the decision of BUITEMS shall be final. The prospectus does not form any part of a contract between any person and the Institute.



## Message by the Vice Chancellor

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.

### **Khalid Hafeez PhD (TI)**

Professor of 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)

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.

#### Our Vision

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.



## The University

Standing as the prestigious and leading university centered in Balochistan influencing the future with academic excellence BUITEMS is defined by its quality and rigour in education and applied research.

BUITEMS has five faculties and each faculty is comprised of many departments. The Faculty of Engineering & Architecture (FoE&A) has eight departments. The University through the offices of the Dean/ HODs, Registrar, Controller of Examinations and the Directorates helps in maintaining a conducive environment for teaching and Learning. All these offices along the faculty & students work as team.

## Our Programs

BUITEMS transformative & innovative education system provides a wide range of academic programs spanning comprehensive areas of engineering, sciences and arts. It also provides multi-disciplinary and cross-faculty learning opportunities.

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 for creating and discovering their own BUITEMS experience.

## BUITEMS Structure

BUITEMS quest for academic excellence is based on five fundamental pillars; the students, the faculty, the curriculum, the learning environment and the civil society we serve. We stand committed to follow all statutory requirements in our academic offerings not only in following the standards but also to set new Records of Excellence. We provide great learning opportunities for our students. We have considerably personalized teaching method for our Students with effective supervisions. As a research-intensive institution with a commitment to provide high- quality education, BUITEMS ensures an academically rigorous and stimulating experience for its students. Highly-qualified faculty members, equipped labs and well structured program at BUITEMS provide a great learning experience in the undergraduate and graduate degree programs.

## The Faculties

- The faculty is responsible to design the curricula.
- Organize lectures, seminars, practical and projects.
- Arrange examinations & mark papers.
- Maintain academic excellence and professionalism
- Provide an environment conducive to learning, teaching, academic inquiry and innovation

## What we are looking for

We are looking for individuals who are willing to contribute in the field of science, engineering and arts. We strongly encourage all applicants to choose fields of study which truly interest them. We are looking for students who:

- have a strong academic potential
- have a strong interest in the fields they are applying for
- will benefit from and grow in the BUITEMS environment

## Academic Potential

We are looking for students with a compelling academic background and potential. This should be reflected in the past qualifications and the entry test. BUITEMS expects its students to excel further in terms of academic performance. Therefore, the student has to aim at excellent cumulative grade point average (CGPA) throughout the degree program.

## Interest in your field of study

At BUITEMS, we are looking for students who are truly excited about their field of study they have chosen and want to make that field as their career path. We firmly believe that the academic excellence can only be achieved when the student is motivated by his or her field of study; we believe that learning comes through stimulation and interest. Therefore, we strongly advise you to thinkcarefully when you choose your field of study.

## 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 higherlearning 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.



## Four simple steps



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

1



Fill out the admission form available by visiting [buitms.edu.pk/Admission](http://buitms.edu.pk/Admission) 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.

2



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

3



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

4

### Calculating the merit

Merit is based on the cumulative of 20% for the marks scored in matriculation examination, 50% for the marks scored in intermediate examination and 30% for the marks scored in the NTS admissions test.

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.

#### How do I apply?

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

Supporting documents

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

#### What are the entry requirements?

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, BUITEMS

Takatu Campus, Airport Road, Baleli. Quetta.

UAN: +92 81 111-717-111

Other lines: +92 81 2880560 / 2880136 Extensions: 163, 216, 217

#### Where to send the documents?

Online application processing fee is Rs.3500 for national applicants and US \$75 for foreign applicants. 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 Ltd, BUITEMS University branch, Quetta, Pakistan.

#### What are the payment options?

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.

#### What next?

### INTERNATIONAL STUDENT

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 10,000 and 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.

What is the duration of a program at BUIITEMS?

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

How can I change the program of study at BUIITEMS?

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.

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 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 of 2.0 and 2.5 CGPA respectively, is required to pass out.

What are the different financial assistance options at BUIITEMS?

The BUIITEMS Fee Concession & Scholarship Policy has the following aspects:

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

For more information related to financial assistance you can contact the university advancement and financial assistance office.



Life at BUIITEMS is a work hard and have fun culture. As members of the BUIITEMS family, the student, faculty and staff enjoy an exciting, vibrant and colourful life at BUIITEMS. From high class academic lectures and laboratory experiments, to exciting sports, art events and service projects, there are always great things happening on campus.

## Events and fests

From the one-of-a-kind cultural festivals on campus to accomplished student performances in theatre, arts and culture, the student affairs plays a leading role in the life at BUIITEMS. Student affairs comprises of more than twenty student clubs and organizations that continuously provide fuel for constructive social life at BUIITEMS.

## The Olympiad

The annual Olympiad marks the culmination of athletics and sports at BUIITEMS. The Olympiad is a week of non-stop sports and athletics competitions in more than fifteen sports categories with over one thousand athletes participating from among the staff and students.



BUIITEMS have been directly educating young children who are laboring to meet the finances of their families.

## Continuous Buzz

BUIITEMS 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. BUIITEMS family is prepared to freely pursue life-long personal and professional fulfillment, engagement, and stewardship of ever-changing local

## Community service

BUIITEMS 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 BUIITEMS. Through the organization, the students

## 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 BUIITEMS. We have more than 3,000 members of our sports facilities and approximately 1,000 students participate in different sports tournaments inside and outside the province. With so many activities to try out and plenty of post-exertion socializing opportunities available, you can get fit and have fun at the same time. If you are a talented athlete in training, we offer a range of services to support you as well as sports bursaries and funds for team participations in the inter-university championships and tournaments.



The University also has:

- Multi-purpose sports complex
- High class gym (separate for females)
- Swimming Pool
- Bowling Club
- PCB standard cricket stadium
- High class football ground
- Basketball courts

## Facilities

BUIITEMS boasts in providing one of the best sports facilities in the country. Sports and athletics form one of the core features of life at BUIITEMS. The newly constructed sports complex is a jewel of recreation facilities at BUIITEMS. The Sports Complex provides venues and gear for a range of sports including basketball, handball, badminton, table tennis and volleyball. Fully equipped gym and fitness center is part of the Sports Complex that houses the finest fitness equipments to keep you agile and healthy. The world class cricket stadium at BUIITEMS is 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 BUIITEMS 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.



## Libraries

With over 40,000+ books, the BUIITEMS 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.

The digital library service on the other hand places treasure of research journals, and millions of other publications on students' fingertips



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 BUIITEMS, we spend millions on our equipment and academic support services to create a quality environment where you feel stimulated



## Art galleries

Thanks to the Faculty of Arts and Basic sciences, the campus has a number of art galleries showcasing fascinating collection of modern art ranging from artifacts, paintings, and sculptures made by the students and faculty of FABS. Even if not directly related to your course, students of FICT spend time and receive their share learning and knowing arts at the galleries.



## Research center and senior design labs

BUIITEMS 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 computers. To cater the needs of undergraduate students working on final year projects, senior design labs are provided where student groups are assigned a research space with necessary resources depending on the student discipline.



## NIC Quetta

National Incubation Center Quetta is committed to support the youth of Balochistan to develop sustainable and impactful startup ventures. In order to create jobs, revitalize community, commercialize new technology and strengthen the local economy.



The city is famous for its amazing weather and beautiful fruit orchards in and around. Quetta is surrounded by small valleys and hills. Quetta is situated at an average elevation of 1,680 meters above sea level, making it Pakistan's only high-altitude major city. Quetta has a semi-arid climate with a significant variation between summer and winter temperatures. Located in Pakistan's most attractive destination, BUIEMS has loads to offer you as a student.



Just 130 km away from the Quetta city, Ziarat is the popular tourist destination for tourists. It is famous for being the second largest Juniper forest in the world. Ziarat is home to the famous Ziarat residency where founder of nation Quaid e Azam Mohammad Ali Jinnah lived and spent his last days of life. residency is made of wood and stone and has a beautiful architecture, representing the English architecture of 19th century.

## Attractions in & outside the city

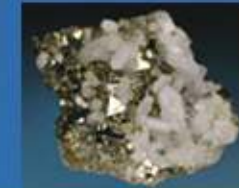
Hanna Lake, which nestles in the hills ten kilometres east of the city, is a turquoise body of water that contrasts markedly with the bare surrounding hills. It is an attractive destination with facilities for boat hire. At one end of the Hanna Lake, there is an irrigation dam also which catches the eyes of the visitors at a first glance. 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. The area is mountainous with precipitous slopes divided by ravines. Facilities include a museum, picnic spots and accommodation in rest houses.

## Climate

Unlike more easterly parts of Pakistan, Quetta does not have a monsoon season of heavy rainfall. In the winter snow is the principal form of precipitation, and this falls mostly in the months of December, January and February. Winter starts in late November and ends in late March, with average temperatures near 4-5°C. Spring starts in early April and ends in late May and summer starts in late May and goes on until early September with average temperatures ranging from 24-26°C. Autumn starts in late September and continues until mid-November with average temperatures in the 12-18°C range.



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 Harnai are popular picturesque places for tourists traveling 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.



Wali Tangi Dam is a small dam in the Urak Valley situated approximately 20 km east of Quetta and attracts local tourists in summer.

Wali Tangi Dam was constructed by the Pakistan Army in the early 1960s with the purpose of supplying clean water to the Urak Valley and Quetta for irrigation and human consumption. The dam stores and utilizes fresh water from melting snows in the surrounding Zarghoon Hills, which are part of the Sulaiman Range.



Pir Ghaib is a waterfall and picnic spot located 70 km from the Quetta City in historic Bolan valley. There are cascade waterfalls and two separate waterfalls flow into a larger clear and blue pool of cool water among the shady palm trees. The waterfall is known to be flowing where the surrounding is barren.

## Faculty of Engineering & Architecture

The Engineering education in the country has significantly assisted the exploitation of natural resources. All we need is the excellence in Engineering education by continuously producing well-trained engineers with skills required for growing industries. The engineers produced will serve oil and gas sector, mining and mineral industry, dam building, construction, petrochemical based industries, fertilizers plants as well as serving other public and private sector organizations.

Faculty of Engineering and Architecture was established in 2004 and it is located at BUITEMS Takatu campus named after the Takatu mountain, Quetta.

The faculty initially had three departments: Petroleum and Gas Engineering, Textile Engineering and Chemical Engineering but, since 2007, the Faculty has established six more departments namely, Civil Engineering, Geological Engineering, Mechanical Engineering, and Architecture.

These Departments offering BS, MS and PhD degree programs. All BS Engineering and Architecture program are accredited by Pakistan Engineering Council and Pakistan Council for Architecture and Town Planning, respectively.



## Dean's Message

Welcome to the Faculty of Engineering and Architecture a place where innovation meets excellence.

Our faculty is committed to providing a rigorous academic environment that combines strong theoretical foundations with cutting-edge research and real-world practice. We offer programs that inspire curiosity, foster critical thinking, and equip students with the skills needed to address the challenges of tomorrow.

At both undergraduate and postgraduate levels, we cultivate a culture of creativity, collaboration, and research. Our dedicated faculty members are not only educators but also mentors and researchers who guide students to explore, innovate, and excel in their fields.

In alignment with the university's mission, we place a strong emphasis on instilling ethical values, professional integrity, and social responsibility in our students. These principles are essential as we prepare future engineers and architects to make meaningful contributions to society.

As Dean, I warmly invite you to join us on this exciting journey. Embrace the challenges, engage deeply with your studies, and contribute actively to the vibrant academic community we are building. I am confident that your time here will be both transformative and rewarding, paving the way for a bright and impactful future.

Prof. Dr. Ghulamullah Khan

# Outcome Based Education

## Washington Accord

Outcome-Based Education (OBE) represents a clearly focused and powerful way of organizing and operating instructional systems. OBE fosters a better integration between education at school, workplace and higher education level. OBE helps learners to accept responsibility for learning, as they are now at the centre of the learning process. Recognition of prior learning prevents the duplication and repetition of previous learning situations.

It is an educational theory that bases each part of an educational system around goals (outcomes). By the end of the educational experience, each student should have achieved the goal. There is no single specified style of teaching or assessment in OBE; instead, classes, opportunities, and assessments should all help students achieve the specified outcomes.

Established in 1989, the Washington accord is an international accreditation covenant for the professional engineering academic undergraduate programs. The initial signatories were Australia, Canada, the Republic of Ireland, Hong Kong, Japan, New Zealand, Singapore, South Africa, South Korea, Taiwan, Malaysia, India, Sri Lanka, the United Kingdom and the United States. It recognizes that there is significant equivalency of the engineering programs accredited by those signatories and that graduates of accredited programs in any of the signatory countries are acknowledged by the other signatory countries as having met the academic requirements for entry in to the practice of engineering. The admission of new signatories to this accord require the approval of at least two-thirds of the existing signatories and then preceded by a prescribed period of provisional status during which the accreditation criteria and procedures established by the applicant, and the way in which these procedures and criteria are implemented, will be subject to a comprehensive examination.

PEC is a provisional signatory to Washington Accord. To be able to get the member status, PEC is implementing OBE in all engineering degree awarding institutes. BUITEMS is also making every effort to take the PEC accreditation for all engineering programs based on OBE manual.

## OBE emphasizes on the student learning by

- Utilizing student learning outcomes to make explicit what a student is expected to be able to know, comprehend or do.
- Providing learning positive activities that would help students to attain those course learning outcomes.
- Assessing the extent to which the student meets these outcomes through the use of explicit assessment criteria.

## The key features of OBE are as follows

- It has program objectives and outcomes, Course Learning Outcomes (CLO's) and performance indicators (PI's).
- It is objective and outcome driven, in which every stated objective and outcome could be assessed and evaluated.
- It is centered around requirement of students and key stakeholders.
- Since CLO's are intentional, so they must be assessed using appropriate PI's.
- Program educational objectives (PEO) address the graduates attainment within 3-5 years after their graduation.
- PEO's consist of abilities to be acquired by students before they graduate, are formulated based on the program objectives.
- PEO's address knowledge , Skills and Attitudes to be acquired by the students.
- PLO's are mapped with PEO's of the engineering program and CLO's of each course are specifically mapped with PLO's.

## Program Learning Outcomes (PLO's) of all Undergraduate Engineering Programs

*Program learning outcomes are the narrower statements that describe what students are expected to know and be able to do by the time of graduation. These relate to the knowledge, skills and attitude that the students acquire while progressing through the program. The program must demonstrate that by the time of graduation the students have attained a certain set of knowledge, skills and behavioral traits, at least to some acceptable minimum level. Specifically, it is to be demonstrated that the students have acquired the following graduate attributes:*

**1. Engineering Knowledge:** An ability to apply knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.

**2. Problem Analysis:** An ability to identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.

**3. Design/Development of Solutions:** An ability to design solutions for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.

**4. Investigation:** An ability to investigate complex engineering problems in a methodical way including literature survey, design and conduct of experiments, analysis and interpretation of experimental data, and synthesis of information to derive valid conclusions.

**5. Modern Tool Usage:** An ability to create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modeling, to complex engineering activities, with an understanding of the limitations.

**6. The Engineer and Society:** An ability to apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice and solution to complex engineering problems.

**7. Environment and Sustainability:** An ability to understand the impact of professional engineering solutions in societal



and environmental contexts and demonstrate knowledge of and need for sustainable development.

**8. Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice.

**9. Individual and Team Work:** An ability to work effectively, as an individual or in a team, on multifaceted and /or multidisciplinary settings.

**10. Communication:** An ability to communicate effectively, orally as well as in writing, on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

**11. Project Management:** An ability to demonstrate management skills and apply engineering principles to one's own work, as a member and/or leader in a team, to manage projects in a multidisciplinary environment.

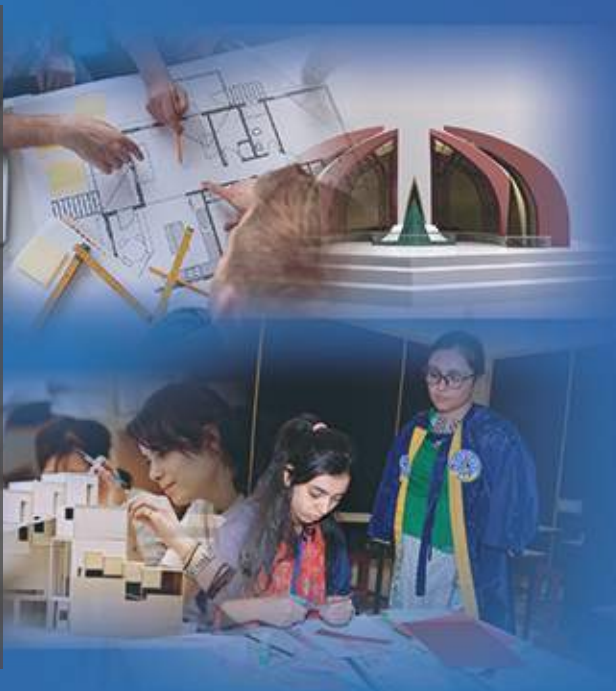
**12. Lifelong Learning:** An ability to recognize importance of, and pursue lifelong learning in the broader context of innovation and technological developments.

Pakistan with 6th largest population of the world, Urbanization and the urban issues are becoming the problem of the country.

There is need to deal with such issues by providing innovative solutions to create a better living (built and physical) environment.

Balochistan is the least developed province of the country, there is a strong need of architects, designers and planners who can contribute not only to provide better living facilities but also enhance the overall built environment with sustainable design and practices.

Architects work in the construction industry designing new buildings and the spaces in and around them. They also help restore and conserve old buildings, and develop new ways of using existing buildings. They are involved in construction projects from the earliest stages to completion.



## The Department

The department of Architecture at BUITEMS was founded in September 2009, as an undergraduate program with just four faculty members and forty students. Today, the Architecture Department has nineteen faculty members; most of them are foreign qualified from best universities of the world. The department has a growing, vibrant, research-oriented faculty who take great pride in research and in undergraduate education. Currently the Department is offering 5 years Bachelors in Architecture program.

## Program Educational Objectives (PEO's)

- 1 To introduce students to architectural fundamentals, spatial strategies and aspects of natural environment, climatology, heritage conservation and an understanding of structures
- 2 To practice research and teach architectural discipline to make sure that our students are provided with a theoretical and practical foundation in the principal areas of architecture and urbanism
- 3 To provide students with a fundamental understanding of elements and principles of design
- 4 To train students to deal with integrated design, construction and operation of an environment that is both built and un-built
- 5 To innovate in the context of local and regional architecture, apparatus and innovative strategies

## Vision

*Our vision is to be among the best architecture schools, where students and teachers find their identity as professional architects of all times and situations, where they explore, discover and build culture artistically with creativity and difference.*

## Mission

*At department of architecture we are committed to train students through in depth study and research in social, cultural, political and historic context; and to provide a comprehensive architectural design solution for the region in general and for Baluchistan in particular with emphasis on its spatial needs.*

## SCHEME OF STUDY

### Semester 1

Foundation Studio - I  
Visual Communication Skills-I  
History of Architecture-I  
Islamic Studies  
Pakistan Studies  
English-I (Functional English)  
Mathematics for Architects

### Semester 2

Foundation Studio - II  
Visual Communication Skills-II  
History of Architecture-II  
Materials & Construction-I  
Surveying & Leveling  
English-II  
Fine Arts

### Semester 3

Architectural Studio - I  
Materials & Construction-II  
Energy & Environment -I  
Structure for Architects-I  
History of Architecture-III  
Computer Applications in Architecture-I

### Semester 4

Architectural Studio-II  
Materials & Construction-III  
Energy & Environment -II  
Structure for Architects-II  
History of Architecture-IV  
Comp. App. in Architecture-II

### Semester 5

Architectural Studio-III  
Materials & Construction-IV  
Building Services & Systems-I  
Working Drawings & Details-I  
Advanced Comp. App. for Architects  
Urban Planning & Design-I

### Semester 6

Architectural Studio-IV  
Building Services & Systems-II  
Interior Design  
Working Drawings & Details-II  
Architectural Research Methods  
Urban Planning & Design-II

### Semester 7

Architectural Studio-V  
Theory of Architecture  
Adv. Arch. Pres. Techniques  
Landscape Architecture  
Disaster Risk Management  
Elective - I

### Semester 8

Architectural Studio-VI  
Heritage Conservation  
Architecture in Pakistan  
Elective - II  
Elective - III

### Semester 9

Thesis Design-I  
Quantity Surveying & Estimation  
Elective - IV  
Elective - V

### Semester 10

Thesis Design-II  
Professional Practice  
Elective - VI

174

Credit  
Hours

66

Courses

Prerequisites

F.Sc. (Pre Engg) with Mathematics & Physics from any recognized board or equivalent with at least 50% marks. Diploma in the same field, securing at least 60% marks. Qualifying the admission test. Aptitude test (Creative thinking, Writing Skills, Free-hand Drawing followed by an interview



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Ar. Mamoon ur Rashid completed his Bachelor of Architecture (B.Arch) from DUET, Karachi, in 2009, securing 2nd Position, and earned his MS in Environmental Management & Policy from BUITEMS, Quetta, in 2019. He is a registered Member of the PCATP and served as an Elected Executive Member from 2017 to 2019. He is also an Associate Member of the Institute of Architects Pakistan (IAP).

He remained Director Planning & Development (P&D) at BUITEMS, where he contributed significantly to the planning, development, and execution of numerous institutional and infrastructure projects. His professional experience reflects extensive involvement in architectural design, campus development, urban planning, and project management. His portfolio includes major projects such as Central Libraries, Academic Blocks, International Students Hostels, Sports Complexes, Mosques, Trauma Centers, Community Centers, Regional Bank Offices, Residential Units, and other institutional infrastructure projects.

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# Chemical Engineering

With the great expansion of scientific knowledge, the basis of applying science, particularly chemistry, to develop technology has increased tremendously. This has lead to the development of the profession of Chemical Engineering. This field is concerned with the designing, supervision, construction, installation and operation of plants and equipment for manufacturing chemical products and developing new methods of production.

This branch of engineering is a varied field, covering areas from biotechnology and nanotechnology to mineral processing. It covers various fields of chemical technology in mineral based industries, petrochemical plants, pharmaceuticals, synthetic fibres, petroleum refining plants etc. Chemical engineers are responsible for the manufacture of fertilizers; plastic, glass and petroleum just to mention a few.



## The Department

The department of Chemical Engineering at BUITEMS was founded in 2005, as an undergraduate program with just four faculty members and fifteen students. Today, the Chemical Engineering Department has twenty-one faculty members; most of them are foreign qualified from best universities of the world. Department has various state of the art laboratories, where students and faculty are engaged in cutting edge research in the field of Nanotechnology, Algal cultivation, Biomass and bioenergy, Waste management for recovery of valuable products, Wastewater treatment and Polymer composites. Currently the Department is offering BS and MS program in Chemical Engineering.

## Program Educational Objectives (PEO's)

1. Professional competency in chemical engineering to address the needs of the chemical and allied industries, research and development sector.
2. Contribute to the solution of industrial problems, technological and societal issues.
3. Pursue professional development and technical achievement through continuing education.

## Vision

*To be among the leading Chemical Engineering department of the country with programs providing quality graduates for the chemical and allied industry with focus on the research and development..*

## Mission

*The Department of Chemical Engineering is committed to establish conducive environment for the professional education and research in the field of Chemical Engineering addressing the needs of the country and region..*

## SCHEME OF STUDY

### Semester 1

Chemistry + Mathematics (Non-credit for ICT/PreMed)  
Islamic Studies/Ethics  
Functional English  
Intro. to Chemical Engg  
Applied Physics  
Pakistan Studies  
Applications of ICT  
Engg Drawing and Graphics  
Understanding of Quran -I

### Semester 2

Calculus and Analytical Geometry  
Organic and Inorganic Chemistry  
Chemical Process Calculations-I  
Ideology and Constitution of Pakistan  
Expository Writing  
Chemical Engg Thermodynamics-I  
Workshop Practices  
Understanding of Quran -II

### Semester 3

Physical and Analytical Chemistry  
Linear Algebra and Differential Equation  
Civic & Community Engagement  
Particulate Technology  
Fluid Mechanics-I  
Quantitative Reasoning -I

### Semester 4

Chemical Engg Thermodynamics -II  
Chemical Process Calculations -II  
Applied Electrical Engineering  
Programming and Data Sciences  
Quantitative Reasoning -II  
Chemical Process Industries  
Muslim Heritage

### Semester 5

Mass Transfer  
Fluid Mechanics-II  
Probability and Statistics  
Heat Transfer  
Numerical Methods with software App.  
Engineering Materials  
Chemical Process Safety

### Semester 6

Instrumentation and Process Control  
Chemical Reaction Engineering  
Transport Phenomena  
Fuels and Energy  
Separation Processes

### Semester 7

Simultaneous Heat and Mass Transfer  
Process Mod., Sim. and Optimization  
Chemical Plant Design  
Climate Change and Risk Mgmt.  
FYDP (Part-I)  
Depth Elective-I  
Occupational Health and Safety

### Semester 8

Depth Elective-II  
Elective-III (Gender Sensitivity)  
Environmental Engineering  
Entrepreneurship  
Maintenance and Utility Engineering  
Project Management  
FYDP (Part-II)

140

Credit  
Hours

55

Courses

Each course is taught according to OBE system guidelines regulated by Pakistan Engineering Council. CLO's of each subject are assessed typically by 4 to 6 Assignments, 4 Quizzes, Midterm and Finalterm Examinations. Moreover, some subjects need presentations during the semester. Practical work is assessed separatley ato Lab Rubrics. PEO's of the program is being assessed after three years of graduation date and indicate the achievements of program graduates in their career and professional life after graduation.

Prerequisites

FSc (Pre-Engg/Pre-Med/ICS) from any recognized board with at least 60% marks. Diploma of Associate Engineer in the same field, securing at least 60% marks.

Qualifying the admission test.

## MAIN TEAM



**Dr. Muhammad Najam Khan**  
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**CHAIRMAN**  
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Engr. Dr. Amin did his Ph.D. in Chemical Engineering from Prince of Songkla University Thailand in 2019 and Master's in Chemical Engineering from University of Moratuwa, Sri Lanka in 2015. He did his Bachelors' of Science in Chemical Engineering from BUITEMS in 2010. Dr. Muhammad Amin is. He is the founder of Pakistan Institute of Chemical Engineers (PICHE) BUITEMS Chapter. He has multi-disciplinary experience in education, administration, industry, installation and commissioning of laboratory units & research. His research interests are renewable energy, energy efficiency, heat transfer; transport phenomena, chemical plant design and simulation.

He is serving BUITEMS since 2013



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**Engr. Gohram Khan***Lab Engineer (E.O.L)*

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 Joined BUITEMS in 2019



# Civil Engineering

Civil engineering is a professional engineering discipline that deals with the planning, design, budgeting, surveying, construction, and maintenance of the physical and naturally built environment, including public works such as roads, bridges, canals, dams, airports, sewerage systems, pipelines, structural components of buildings, and railways.

Civil engineering is traditionally broken into a number of sub-disciplines. It is one of the oldest branches of engineering, dating back to when people first started living in permanent settlements and began shaping their environments to suit their needs.

Engineers are employed by a wide range of companies, from small startup businesses focused on a new invention idea to large-scale companies that work on immense contracts.



## The Department

The Department of Civil Engineering was established in 2008 at BUITEMS under the umbrella of Faculty of Engineering and started the program as the Bachelors of Science in Civil Engineering with the intake of 100 students at Takatu Campus, Quetta with the high spirit and hope to produce quality civil engineers. At current, the Department produces highly specialized and professional engineers which serve in the field as well as in the academia at all levels. The department is continuing its postgraduate program Masters of Science in Civil Engineering since 2015. The courses are aimed at bringing the students abreast with the most recent developments in their fields of specialization.

## Program Educational Objectives (PEO's) BS-CVE

1. Graduates have the essential knowledge and adequate civil engineering skills to meet industrial requirements.
2. Graduates are able to demonstrate high ethical values and societal responsibilities for sustainable development.
3. Graduates are able to communicate effectively, reflect interpersonal skills, lead and work collaboratively in teams.
4. Graduates are able to keep abreast with latest innovation and technological developments through continued professional practices, higher studies and research.

### Vision

*To make the department a Centre of Excellence in education and research on Structure, environment, and highway through ideas and expertise, ensuring the long-term competitiveness of the entire Civil Engineering field in Pakistan.*

### Mission

*To produce highly competent professionals with strong ethical values, enabling them to take up executive positions in civil engineering, pursue higher studies in prestigious universities, engage in lifelong learning, and provide societal leadership. The department also aims to provide a dynamic learning environment that emphasizes open-ended design, problem-solving skills, teamwork, communication, cutting-edge research, and the development of leadership abilities.*

## SCHEME OF STUDY

### Semester 1

Civil Engineering Materials  
Electrical Fundamentals  
Mechanical Fundamentals  
Engineering Drawing  
Functional English  
Quantitative Reasoning-I  
Applications of ICT

### Semester 2

Engineering Surveying  
Geology for Engineers  
Islamic Studies/ Ethics  
Engineering Mechanics  
Ideology and Constitution of Pakistan  
Computer Programming  
Quantitative Reasoning-II

### Semester 3

Civil Engg. Drawing & Graphics  
Advanced Engineering Surveying  
Fluid Mechanics  
Mechanics of Solids-I  
Structural Analysis-I  
Advanced Calculus

### Semester 4

Construction Engineering  
Highway & Traffic Engineering  
Applied Mathematics  
Mechanics of Solids-II  
Soil Mechanics  
Pakistan Studies  
Quantity & Cost Estimation

### Semester 5

Numerical Analysis  
Pavement Analysis & design  
Expository Writing  
Geotechnical Engineering  
Reinforced Concrete Design-I

### Semester 6

Hydraulics Engineering  
Environmental Engineering  
Structural Analysis-II  
Advanced Fluid Mechanics  
Runway, Railway and Ports Engineering  
Civics and Community Engagement  
Engineering Economics

### Semester 7

Foundation Engineering  
Engineering Hydrology  
Modelling & Simulation  
Reinforced Concrete Design-II  
Project Management  
FYDP Part-I  
Fahm-e-Quran I

### Semester 8

Irrigation Engineering  
Geoinformatics  
Steel Structures  
Architecture & Town Planning  
Occupational Health & Safety  
Professional Ethics  
FYDP Part-II  
Fahm-e-Quran II

Each course is taught according to OBE system guidelines regulated by Pakistan Engineering Council. CLO's of each subject are assessed typically by 4 to 6 Assignments, 4 Quizzes, Midterm and Finalterm Examinations. Moreover, some subjects need presentations during the semester. Practical work is assessed separately according to Lab Rubrics. PEO's of the program is being assessed after three years of graduation date and indicate the achievements of program graduates in their career and professional life after graduation.

140

Credit  
Hours

54

Courses

Prerequisites

FSC (Pre-Engg./Pre-Med/ICS) from any recognized board with at least 60% marks.  
DAE (Civil Engg.) securing 60% Marks.

Qualifying the admission test.



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## MAIN TEAM



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**Engr. Shehzada Muhammad Emaad Khan**

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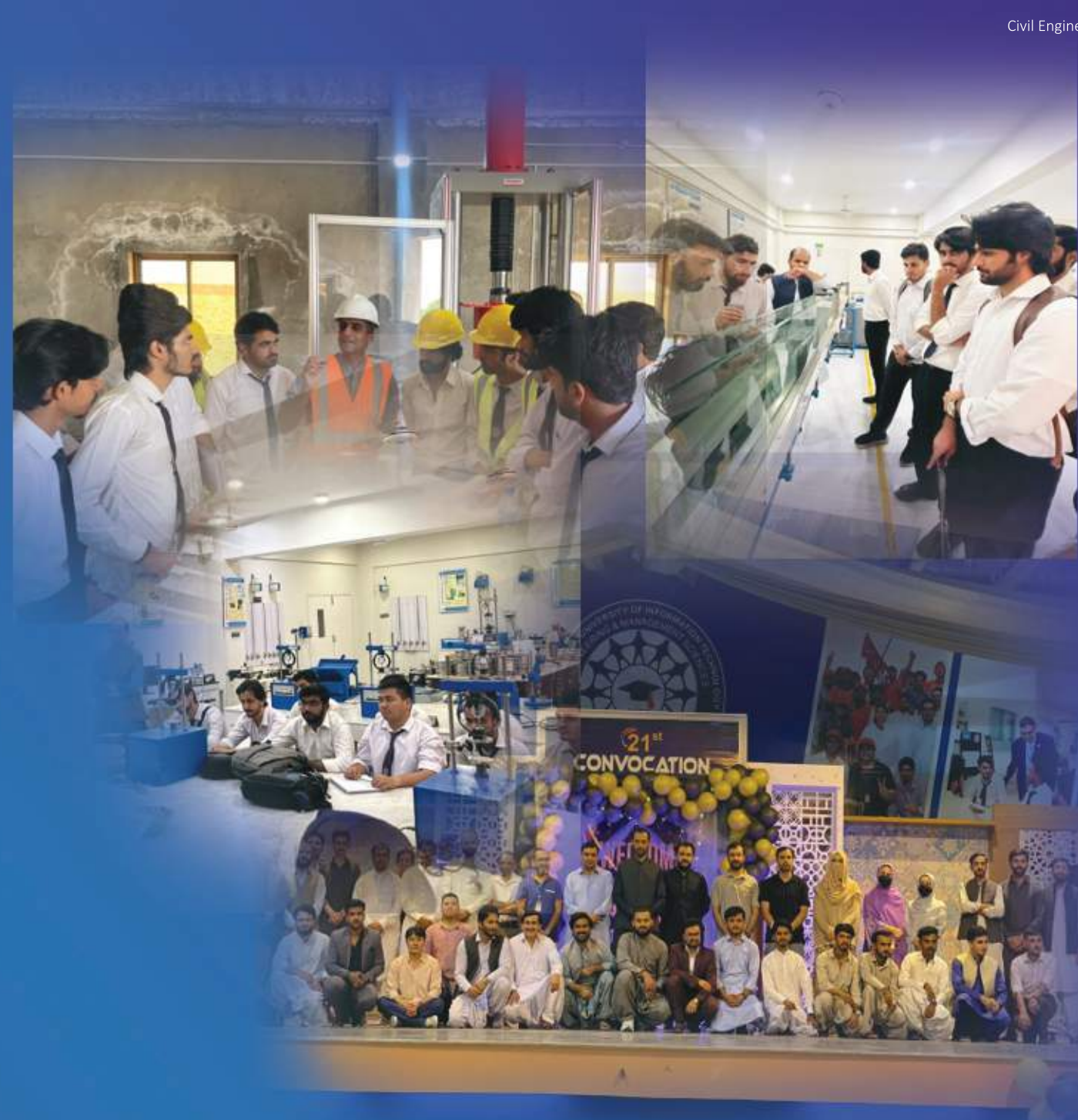
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**Engr. Zarak Khan**

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Geological engineering is the engineering science of applying engineering principles to the study of geological materials as part of the engineering design of facilities including roads, tunnels, and mines especially as related to minerals and mineral products. Some see it as a merging of the disciplines of geology and engineering and material science, but, while it includes aspects of all, it has several specializations unique to the field.

Geological Engineers play key roles in the exploration, protection, and responsible development of Earth's water, mineral, and hydrocarbon resources. They also ensure that structures such as bridges, dams and buildings are designed for long term stability and safety, taking geological conditions and hazards into account. They must integrate a wide variety of data with engineering knowledge in order to make informed recommendations and decisions.



### The Department

The department of Geological Engineering at BUITEMS was founded in 2008, as an undergraduate program with thirty-three students in its first batch. The Geological Engineering Department has fourteen faculty members; most of them are foreign qualified from best universities of the world. The department has a growing, vibrant, research-oriented faculty who take great pride in research and in undergraduate education. Currently the Department is offering BS program in Geological Engineering.

### Program Educational Objectives (PEO's)

- The Geological Engineers graduated from BUITEMS will have;
1. The ability to apply technological and engineering fundamentals for the solution of geotechnical and environmental problems that are related to Geological processes.
  2. The ability to exhibit effective communication, teamwork, leadership skills, and technical competence enabling them to excel in their professional careers as well as in higher studies.
  3. The ability to fulfil ethical, professional, and social responsibilities in their professional lives and community services.

### Vision

*To be among the leading Geological Engineering department of the country with programs providing quality graduates for the geological and allied industry with focus on the research and development..*

### Mission

*The Department of Geological Engineering is committed to train engineers with advanced knowledge and contemporary skills, while promoting a culture of research, equipping students with the art of living to achieve success in their future professional careers not only in Pakistan but throughout the world.*

## SCHEME OF STUDY

### Semester 1

Engg Drawing & Graphics  
Basic Electrical and Elec Engg  
Physical Geology  
Applied Chemistry  
Calculus & Analytical Geometry  
Islamic studies/Ethics  
Functional English

### Semester 2

Mineralogy & Petrology  
Introduction to Geological Engg  
Differential Equations  
Applied Physics  
Communication Skills  
Pak-Studies  
Introduction to ICT  
Occupational Health & Safety

### Semester 3

Applied Thermodynamics  
Stratigraphy & Structural Geology  
Linear Algebra  
Fluid Mechanics  
Computer Programming  
Engineering Economics

### Semester 4

Mechanics of Material  
Surveying  
CS and NA  
Hydrogeology  
Probability & Statistics  
TRW & Presentation Skills

### Semester 5

Engineering Geology  
Intro to Geophysical Exp Tech  
Geotechnical Engineering-I  
Explosives Engineering  
Engineering Management  
Sociology for Engineers

### Semester 6

Petroleum Geology  
Rock Mechanics  
Earthquake Seismology & Risk Assessment  
GIS & Remote Sensing  
Environmental Geological Engineering

### Semester 7

Major Elective I  
Tunneling & Excavation Engg  
Major Elective II  
Drilling Engineering  
Project -I

### Semester 8

Major Elective III  
Major Elective IV  
Entrepreneurship  
Project -II

Note: Non credit Fundamental Chemistry for ICS and Mathematics for Pre-medical in first semester.

Each course is taught according to OBE system guidelines regulated by Pakistan Engineering Council. CLO's of each subject are assessed typically by 4 to 6 Assignments, 4 Quizzes, Midterm and Finalterm Examinations. Moreover, some subjects need presentations during the semester. Practical work is assessed separately according to Lab Rubrics. PEO's of the program is being assessed after three years of graduation date and indicate the achievements of program graduates in their career and professional life after graduation.

Prerequisites

136  
Credit  
Hours

46  
Courses

FSC (Pre-Engg/Pre-Med/ICS) from any recognized board with at least 60% marks.  
DAE (Civil, Land and Mine Surveying, Mining) securing 60% Marks.

Qualifying the admission test.



**Dr. Shabir Ahmed**  
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**CHAIRMAN**  
 Department of Geological Engg.  
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Engr. Dr. Shabir Ahmed is the Chairperson and Assistant Professor at the Department of Geological Engineering, BUITEMS. He earned his PhD in Geotechnical Engineering from the University of Wollongong, Australia, where he received the 2021 Tetra Tech Coffey Geotechnics UOW Award for Best Postgraduate Performance in Geotechnical Research. During his stay in Australia, he contributed to industrial projects, offering practical solutions to geotechnical challenges. Earlier, he completed his Master of Engineering in Geotechnical Engineering from UET NED Karachi and worked on a World Bank project to evaluate soil conditions and recommend foundation capacities for school buildings in Balochistan. His undergraduate degree is a BSc in Geological Engineering from UET Lahore. Before joining BUITEMS in 2009, he served as a Geological Engineer with CAMEOS Consultant on small dam projects. His research focuses on geotechnical engineering, ground improvement, and rock mechanics, with publications in reputed international journals aligned with UN SDGs.

## MAIN TEAM



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 PhD Geophysics Quaid-I-Azam University Islamabad  
 Joined BUITEMS in 2009



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**Engr. Saleem Ullah**  
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 MS Geological Engineering UET Lahore  
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**Engr. Rana Muhammad Faisal Khan**  
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 MS Mining Engineering BUITEMS Quetta  
 Joined BUITEMS in 2020

# Mechanical Engineering

Mechanical engineering is a stream of engineering which provides solutions to the development of processes and products, ranging from small component design to extremely large plant, machinery or vehicles. Mechanical engineering caters all stages of a product, from research and development to design and manufacturing, installation and commissioning.

Several industries rely on a form of mechanical systems and mechanical engineering is thought to be one of the most diverse of all the engineering disciplines. Due to this edge over disciplines, there are numerous job opportunities in mechanical engineering in a broad range of sectors such as manufacturing, power, construction, medical, aerospace, process and oil. Moreover mechanical engineers can be involved in the resource management as well as the development of new technologies.



## The Department

The department of Mechanical Engineering at BUITEMS was founded in 2014, as an undergraduate program with just three faculty members and fifty students. Today, the Mechanical Engineering has eleven faculty members; most of them are foreign qualified from best universities of the world. The department has a growing, vibrant, research-oriented faculty who take great pride in research and in undergraduate education. Currently the Department is offering BS program in Mechanical Engineering.

## Program Educational Objectives (PEO's)

- 1 Provide solution to application level problem of energy, manufacturing and food sector using knowledge of basic sciences and fundamentals of mechanical engineering.
- 2 Design mechanical system by using analytical thinking, knowledge and modern techniques and create new ideas related to the modern disciplines.
- 3 Acquire the competency for interdisciplinary approach to address the complex problems in the social technological area like renewable energy and sustainable development by inculcating profession, ethical value, teamwork, leadership, communication and managerial skill.
- 4 .Develop attitude or lifelong learning to make graduates adopt a healthy and symbiotic environment with strong entrepreneurial instinct helping in creating new opportunities, especially in Balochistan.

## Vision

*To be a highly reputed Mechanical Engineering department, that offers its own unique blend of technical specializations and research opportunities.*

## Mission

*The mechanical engineering department at BUITEMS is committed to provide a challenge driven academic environment to the young professionals. We facilitate students to build their capacity and make them ready for the competitive world. Keeping our foreign qualified faculty up to date with the state of the art techniques is our top priority. We also desire to maintain our department's standing as the first choice for merit students.*

## SCHEME OF STUDY

| Semester 1                                                                                                                                                                                       | Semester 2                                                                                                                                                                                                                            | Semester 3                                                                                                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Islamic Studies<br>Calculus And Analytical Geometry<br>Functional English<br>Applied Chemistry<br>Application of ICT<br>Mechanical Engg Drawing & Graphics<br>Mechanical Workshop<br>Pak Studies | Linear Algebra and Differential Eq<br>Electrical Engineering<br>Engineering Mechanics-I<br>Thermodynamics – I<br>Materials Engineering<br>Civics and Community Engagement<br>Ideology and Constitution of Pakistan<br>Gender Equality | Computer Aided Drawing<br>Engg Mechanics-II<br>Mechanics of Material – I<br>Computer System and Programming<br>Fluid Mechanics – I<br>Thermodynamics-II<br>Fehme Quran I<br>Muslim Heritage |
| Semester 4                                                                                                                                                                                       | Semester 5                                                                                                                                                                                                                            | Semester 6                                                                                                                                                                                  |
| Complex Variables & Transforms<br>Mechanics of Materials-II<br>Fluid Mechanics-II<br>Machine Design -I<br>Applied Ai & Machine Learning<br>Expository Writing<br>Fehme Quran II                  | Project Management<br>Mechanics of Machines<br>Instrumentation and Control Engg<br>Heat & Mass Transfer<br>Electronics Engineering<br>Numerical Analysis<br>Engineering Economics                                                     | Heating, Ventilation & Air Cond.<br>Manufacturing Processes<br>Machine Design-II<br>Finite Element Methods<br>Mechanical Vibrations                                                         |
| Semester 7                                                                                                                                                                                       | Semester 8                                                                                                                                                                                                                            |                                                                                                                                                                                             |
| Internal Combustion Engines<br>HVAC and Heat & Mass Transfer<br>Product Design and Development<br>Final Year Design Project – I<br>Climate Change and Risk Mgmnt<br>Applied Statistics           | Occupational Health & Safety<br>Reverse Engineering & Inspection<br>Mechatronics & Robotics Engineering<br>Aerodynamics<br>Entrepreneurship<br>Final Year Design Project-II                                                           |                                                                                                                                                                                             |

Each course is taught according to OBE system guidelines regulated by Pakistan Engineering Council. CLO's of each subject are assessed typically by 4 to 6 Assignments, 4 Quizzes, Midterm and Finalterm Examinations. Moreover, some subjects need presentations during the semester. Practical work is assessed separatley according to Lab Rubrics. PEO's of the program is being assessed after three years of graduation date and indicate the achievements of program graduates in their career and professional life after graduation.

Prerequisites

140  
Credit  
Hours

55  
Courses

FSC (Pre-Engg/Pre-Med/ICS) from any recognized board with at least 60% marks.  
DAE (Mining Engg.) securing 60% Marks.

Qualifying the admission test.

## MAIN TEAM



**Dr. Ali Nawaz Mengal**  
*Professor*  
**CHAIRMAN**  
 Department of Mechanical Engg.  
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Dr. Ali Nawaz Mengal earned his Mechanical Engineering (Alternative Energy) doctorate from Universiti Teknologi Petronas, Malaysia. He also holds an M.Sc. in Mechanical Engineering Design from NED UET Karachi, and a B.E. from UET Taxila, Pakistan. With over 21 years of experience, he serves as Professor of Mechanical Engineering at BUITEMS, Quetta, previously Dean of Engineering and department chair. In 2019, he became founding Vice Chancellor of Mir Chakar Khan Rind University, Sibi, overseeing its academic and administrative establishment. As Principal Investigator, he led high-impact research projects in composites and renewable energy, secured worldwide recognition through 40+ peer-reviewed publications and a book chapter. His global engagement spans faculty development programs in the USA and Malaysia, national and international conference presentations, academic-industry MoUs, thesis evaluations, program accreditation and frequent journal peer reviewing.



**Dr. Azmatullah Khan Sherani**  
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 MS Metallurgical Engg, MS Industrial Engg  
 MS Structural Design, MS Statistics  
 Joined BUITEMS in 2011



**Dr. Asadullah**  
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 B.E Industrial Engineering and Management DUET Karachi  
 MS Mechanical Engineering Hanyang University S. Korea  
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 B.E Mechanical Engineering MUET Khairpur  
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**Engr. Muhammad Ayub**  
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 B.E Mechanical Engineering BUET Khuzdar  
 ME Energy System Engineering MUET Jamshoro  
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**Engr. Shabir Ahmed**  
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**Engr. Qamar ud Din Abid**  
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**Engr. Moiz Ullah**  
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 ME Mechanical Engineering NEDUET Karachi  
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**Engr. Zaib Shahid**  
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**Engr. Suleman Khan**  
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 MS Mechanical Engineering BUET Khuzdar  
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**Engr. Fasihullah Kakar**  
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 BS Mechanical Engineering BUITEMS Quetta  
 MS Mechanical Engineering BUET Khuzdar  
 Joined BUITEMS in 2019

Mining Engineering is a multifaceted profession that provides a broad range of career opportunities for our graduates in industries such as the Metal Mining (Hard Rock Mining) and Non-metal mining; Coal mining, Gems, Quarrying, suppliers of mining equipment/machinery, research, mine valuation and consultancy, etc.

The demand for Mining Engineers has continued in the public sectors including Mines & Mineral Development Department, Government of Balochistan, Saindak Copper & Gold Project, Rekodiq Gold Project, Underground Gasification Project, Thar, Government of Sindh; Lakhra Coal Development Company; Pakistan Atomic Energy Commission (PAEC); Pakistan Mineral Development Corporation (PMDC); Oil and Gas Development Corporation Ltd (OGDCL); Quarries of Pakistan Steel mill, and various other private organizations like; Coal mines, Cement industries, etc.



### The Department

The department of Mining Engineering at BUITEMS was founded in 2008, as an undergraduate program with just four faculty members and twenty-two students. Today, the Mining Engineering Department has sixteen faculty members; most of them are foreign qualified from best universities of the world. The department has a growing, vibrant, research-oriented faculty who take great pride in research and in undergraduate education. Currently the Department is offering BS and MS programs in Mining Engineering (BS-MNE).

### Program Educational Objectives (PEO’s)

- The Mining Engineers graduated from BUITEMS will have the ability;
1. Recognize, investigate and address engineering problems related to exploitation of mineral deposits of Pakistan in general and Balochistan in particular by employing modern techniques
  2. Exhibit high level technical competency, applying research and problem solving skills to produce solutions in the field of Mining Engineering.
  3. Exercise professional excellence utilizing intrapersonal skills focused on workplace safety, environmental sustain

- ability and engineering professional ethics addressing interests of major stakeholders and societal growth.
4. Address complex engineering problems related to Mining Engineering by persuading lifelong learning..

### Mission

*Striving for high quality undergraduate program supported by contemporary and compatible curriculum, applied research, and to produce technically competent mining graduates possessing skills to contribute to Mining industry of Pakistan in general and Balochistan in particular with an environment friendly approach.*

## SCHEME OF STUDY

| Semester 1                                                                                                                                                                                         | Semester 2                                                                                                                                              | Semester 3                                                                                                                                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| Analytical Geometry & Calculus<br>Applied Chemistry<br>Functional English<br>Ideology and Constitution of Pakistan<br>Islamic Studies/Ethics<br>Muslim Heritage<br>Mining Engineering Fundamentals | Linear Algebra<br>Application of ICT<br>Engineering Drawing & Graphics<br>Engineering Mechanics<br>Physical Geology<br>Fehm-e-Quran II                  | Differential Equations<br>Pakistan Studies<br>Introduction to Computer Programming<br>Applied Thermodynamics<br>Fluid Mechanics<br>Applied Electricity |
| Semester 4                                                                                                                                                                                         | Semester 5                                                                                                                                              | Semester 6                                                                                                                                             |
| Numerical Analysis<br>Civic and Community Engagement<br>Mine Surveying<br>Expository Writing<br>Probability and Statistics<br>Industrial Minerals                                                  | Explosive and Blasting Engineering<br>Applied AI & Machine Learning<br>Mineral Processing-I<br>Structural Geology<br>Climate Change and risk management | Underground Mine Design<br>Surface Mine Design<br>Mineral Processing-II<br>Rock Mechanics<br>Occupational, Health & Safety<br>Gender Sensitivity       |

| Semester 7                                                                                                                                                 | Semester 8                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| Mining Laws and Policies<br>Mine Hazards and Safety<br>Mine Ventilation<br>Mine Power, Drainage & Material Handling<br>FYDP (Part-1)<br>Project Management | Entrepreneurship<br>Tunnel Engineering<br>Environmental Aspects of Mining<br>Ore Reserves Estimation<br>FYDP (Part-I1) |

Each course is taught according to OBE system guidelines regulated by Pakistan Engineering Council. CLO’s of each subject are assessed typically by 4 to 6 Assignments, 4 Quizzes, Midterm and Finalterm Examinations. Moreover, some subjects need presentations during the semester. Practical work is assessed separatley according to Lab Rubrics. PEO’s of the program is being assessed after three years of graduation date and indicate the achievements of program graduates in their career and professional life after graduation.

Prerequisites

139

Credit Hours

50

Courses

FSC (Pre-Engg/Pre-Med/ICS) from any recognized board with at least 60% marks.  
 DAE (Civil Engg.) securing 60% Marks.

Qualifying the admission test.



**Dr. Fahim Ahmed Ibupoto**  
*Assistant Professor*  
 Incharge Chairperson  
 Department of Mining Engg.  
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Dr. Fahim Ahmed Ibupoto is an academic and researcher with expertise in Mining and Mechanical Engineering. He earned his B.S. in Mining Engineering from Mehran University of Engineering and Technology, Jamshoro, Pakistan, and completed his unified M.S. and Ph.D. in Mechanical Engineering at Sungkyunkwan University, South Korea. Currently, he serves as an Assistant Professor in the Department of Mining Engineering at Balochistan University of Information Technology, Engineering & Management Sciences (BUIITEMS), Quetta. With over a decade of teaching and research experience, his work focuses on mechanics, rock mechanics, creep and fatigue behavior, coatings, graphene, mining systems, biofuels, renewable energy, and energy policy. Committed to advancing sustainable technologies, he strives to link engineering innovation with real-world energy and mining solutions.

## MAIN TEAM



**Dr. Hafeezur Rehman**  
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 MS leading to PhD Rock Engg Hanyang University, South Korea  
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 Joined BUIITEMS in 2014



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 Joined BUIITEMS in 2015

Balochistan is rich in natural resources like Oil, Gas and Minerals. The largest reserves of gas exist in the area of Sui of this Province, which meets one-third of the country's energy requirements. Further more, Petroleum Engineering has become an area of interest for the globe considering current energy needs of the industrialized society.

The ultimate goal of a petroleum engineer is to pursue all the techniques to achieve maximum sustainable recoveries from conventional and unconventional reservoirs. Achievement of such objectives requires extensive drilling, production and reservoir engineering strategies. Hence, oil and gas industry requires professional graduates capable to deal entire field challenges related to drilling, production and reservoir engineering. Therefore, present need is to train young minds on practical, theoretical and research horizons.



## The Department

The department of Petroleum & Gas Engineering at BUITEMS was founded in 2004, as an undergraduate program with just two faculty members and fifty students. Today, the Engineering has fourteen faculty members; most of them are foreign qualified from the best universities of the world. The department has a growing, vibrant, research-oriented faculty who take great pride in research and in undergraduate education. Currently the Department is offering BS program in Petroleum & Gas Engineering .

## Program Educational Objectives (PEO's)

- The graduates of Petroleum and Gas Engineering department will be able to;
- 1 Address complex engineering problems and sustainable development of conventional and unconventional hydrocarbon resources through investigation using Engineering Knowledge, problem solving skills, and modern tools.
  - 2 Fulfil the requirements for higher studies and cutting-edge research by utilizing teamwork, effective communication ideas, showing excellent ethical values and strong commitment to health, safety, and environment.
  3. Build a symbiotic and social environment with strong morals, project management skills and commercial instinct with lifelong learning, helping in creating new opportunities for engineering graduates.

## Vision

*To be recognized as “Centre of Excellence in Petroleum & Gas Engineering” of the country by producing technically sound petroleum engineers to fuel the indigenous and global petroleum industry.*

## Mission

*The program cultivates industrious engineers for the national and international Petroleum and Gas industry and its related fields in education, business, and government by providing technical knowledge, skills and values through academic inquiry, teaching and technical services.*

## SCHEME OF STUDY

### Semester 1

Fundamentals of Petroleum Engg  
Applications of ICT  
Functional English  
Islamic Studies / Ethics  
Pakistan Studies  
Applied Geology  
Engg Drawing & Graphics  
Workshop Practice

### Semester 2

Calculus  
Petro. Geo. & Geophysical Prospecting  
Intro. to Computer Prog. for Data Sc.  
Applied Physics  
Ideology and Constitution of Pakistan  
Arts & Humanities (\*Elective)  
Civics and Community Engagement

### Semester 3

Petrophysics  
Expository Writing  
Applied Thermodynamics  
Strength of Materials  
Electrical Engineering and Electronics  
Vector and Complex Analysis  
Understanding of Holy Quran – I

### Semester 4

Properties of Reservoir Fluids  
Fluid Mechanics  
Natural Science (Elective-I)  
Drilling Engineering-I  
Differential Equations and Transforms  
Occupational health and safety  
Understanding of Holy Quran – II

### Semester 5

Well Logging and Interpretation  
Reservoir Engineering  
Reservoir Geomechanics  
Natural Gas Procg. and Transportation  
Numerical Methods  
Project Management

### Semester 6

Petroleum Production Engg-I (Elective)  
Well Testing and Analysis  
Field Operations in Petroleum Engineering  
Entrepreneurship  
(Flexible Elective-II)

### Semester 7

Machine Learning  
Petroleum Production Engg-II  
Principles of Reservoir Simulation  
(Flexible Elective-II)  
Final Year Design Project (Phase-I)

### Semester 8

Reservoir Management  
Principles of Enhanced Oil Recovery  
Drilling Engineering-II  
Final Year Design Project (Phase-II)

Each course is taught according to OBE system guidelines regulated by Pakistan Engineering Council. CLO's of each subject are assessed typically by 4 to 6 Assignments, 4 Quizzes, Midterm and Finalterm Examinations. Moreover, some subjects need presentations during the semester. Practical work is assessed separatley according to Lab Rubrics. PEO's of the program is being assessed after three years of graduation date and indicate the achievements of program graduates in their career and professional life after graduation.

Prerequisites

FSc (Pre-Engg/Pre-Med/ICS) from any recognized board with at least 60% marks. Diploma of Associate Engineer in the same field, securing at least 60% marks.

Qualifying the admission test.

139  
Credit  
Hours

50  
Courses



**Dr. Imtiaz Ali**  
*Assistant Professor*  
**CHAIRMAN**  
 Department of P&G Engg.  
*imtiaz.ali@buitms.edu.pk*

Dr. Azizullah has been working as an Assistant Professor at BUITEMS, Quetta since October, 2007. As far as the academic background is concerned, Dr. Shaikh has acquired B.E. degree in Petroleum and Natural Gas Engineering discipline from University of Engineering & Technology Jamshoro in 2006.

He has six-year experience as Assistant Manager (Mechanical Engineering Section) at Al-Abbas Cement Industry Nooriabad Jamshoro Sindh. He got the Masters of Engineering in Petroleum Engineering from the same institute. In 2021 he completed his PhD in "Oil-Gas Field Development Engineering" from China University of Petroleum (East China) Qingdao, China. During the study, he conducted the research on "Preparation of a CO<sub>2</sub> Sensitive Clean Fracturing Fluid and its Displacement in Ultra-low Permeability Oil Reservoir".

Moreover, he possesses the appreciative knowledge in the field of hydrocarbon exploration, drilling engineering, production engineering, and enhanced oil recovery techniques. He joined BUITEMS in 2007.

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Pakistan is the 8th largest exporter of textile commodities in Asia. Textile sector contributes 8.5% to the GDP of Pakistan. In addition, the sector employs about 45% of the total labor force in the country. This sector needs skilled professionals and Engineers for the smooth running of the manufacturing processes and quality control.

Textile engineering deals with the application of science to reveal the relationships between the raw material, process and the finished product to achieve the desired functional or aesthetic effects in the fabric. The success of fabric engineering depends on reliable objective measurements, prediction and control of fabric quality and performance attributes.

In near future Gawadar will be the Centre of industrial zone and demand of Textile Engineers will be increased by PAK-CHINA corridor agreement, with the increase in Textile sector.



### The Department

The department of Textile Engineering & Design at BUITEMS was founded in 2004, as an undergraduate program with just three faculty members and twenty students. Today, the Textile Engineering has eleven faculty members; most of them are foreign qualified from best universities of the world. The department has a growing, vibrant, research-oriented faculty who take great pride in research and in undergraduate education. Currently the Department is offering BS Textile Engineering, MS Textile Engineering and BS Fashion & Textile Design programs.

### Program Educational Objectives (PEO's)

1. Implement real-world applications making use of fundamental engineering knowledge, designs and managerial skills gained during the textile engineering program.
2. Generate innovative and sustainable solutions to complex engineering problems contributing to the textile industry.
3. Promote themselves through communication and interpersonal skills, career management strategies and the ability to deal with technological, socio-economical, environmental and ethical challenges.

### Vision

*To be the leading textile department for center of Excellence in education and research.*

### Mission

*To Provide professional training, promoting social responsibility, values and a progressive research culture among the students of Textile Engineering, making them capable of providing solutions to complex engineering problems, preserving the environment and sustainable development of Pakistan and the Society.*

## SCHEME OF STUDY

### Semester 1

Linear Algebra & Geometry  
Applied Chemistry  
Applied Physics  
Textile Raw Materials-I  
Functional English  
Introduction to Textile Engg

### Semester 2

Calculus-I  
Engineering Drawing & Graphics  
Engineering Mechanics  
Textile Raw Materials-II  
Islamic Studies  
Introduction to Computing  
Communication Skills  
Thermodynamics

### Semester 3

Calculus-II  
Fibre Science  
Machine Design  
Pakistan Studies  
Spinning Preparatory Process  
Fabric Manufacturing-I

### Semester 4

Statistics and Probability  
Electrical & Electronic Engg Fund.  
Professional Ethics  
Yarn Production Process  
Fabric Manufacturing-II

### Semester 5

Organizational Behavior  
Technical Writing and Presn Skills  
Spinning Planning & Production  
Weave Designs & Calculation  
Pre-treatments in Textile Wet Procg.  
Garments Manufacturing Fund.

### Semester 6

Operations & Project Management  
Process Systems & Control  
Textile Dyes & Dyeing  
Anthropometry & Clothing Construction  
Technical Textiles  
Textile Utilities & Services  
Color Science

### Semester 7

Engineering Economics  
Merchandizing  
Computer Application in Textiles  
Mechanism of Garment Machines  
Sewn Production Engineering  
Denim technology  
Design Project-I

### Semester 8

Entrepreneurship  
Textile Testing & Quality Control  
Environmental Issues & Control  
Textile Printing & Finishing  
Design Project-II

Each course is taught according to OBE system guidelines regulated by Pakistan Engineering Council. CLO's of each subject are assessed typically by 4 to 6 Assignments, 4 Quizzes, Midterm and Finalterm Examinations. Moreover, some subjects need presentations during the semester. Practical work is assessed separately according to Lab Rubrics. PEO's of the program is being assessed after three years of graduation date and indicate the achievements of program graduates in their career and professional life after graduation.

Prerequisites

136  
Credit  
Hours

50  
Courses

FSC (Pre-Engg/Pre-Med/ICS) from any recognized board with at least 60% marks.  
DAE (Textile Engg.) securing 60% Marks.

Qualifying the admission test.

# Fashion & Textile Design

The Degree of Fashion and Textile Designing Course concentrates on evolving the sensitivity for innovative designs. It focuses on learning from Balochistan cultural context & universal design approach. This 4 years programme delivers a hands-on experience to the students to form designs, make patterns or drapes & create high-quality products. Moreover, this program combines creative innovation, technical skills and artistic ability in this course.

Fashion and Textile Designing is a dynamic field and opens many career opportunities for students because this is very necessary for their bright future. You can satisfy your artistic skills besides the fame and money, associated with this profession. These courses can help you to get jobs as designers, consultants, and managers.

Other directly related jobs are retail buyers, retail managers, merchandisers, and textile designers.



## The Program

The Department of Textile Engineering started offering BS in Fashion and Textile Design in Fall 2018 with 28 students and 6 Faculty members. Since Fall 2019, two Textile Designers, a Graphic designers and a Fashion Designer graduated from well reputed institutes of Pakistan have also been included in teaching faculty. The University is making very good effort to make a name among the Fashion and Textile Design Institutes of Pakistan. Students are encouraged to participate in both national and international competitions. Students exhibit their work after every two semesters to showcase their work and create awareness in the people of Baluchistan. The students have won the first prize in all Pakistan DICE Textile design competition award held in March 2020 and 3rd position in Facemask Competition held among university students across the country and organized by European Union.

## Aim of the program

The Fashion and Textiles Program in BUIITEMS strives to create the new generation of artistic, innovative, creative and highly skilled designers and entrepreneurs, who will find out the needs of both local and international markets, by providing a strong professional education in the diverse technical and cultural aspects of fashion industry.

major subjects of both fashion and textile design, both theory and practical, which nurtures interests and provides a wide career pathway. Realizing the cultural power of fashion designers, designers from this program not only respond to the demands of local and international fashion clients, but also play a role in setting trends in Balochistan. Fashion and textile design education is now expected to respond to the fashion needs of the citizens of the world. Graduates can pursue their career as fashion or textiles designers, working for their own brands or in any other design houses or industries, work as teachers of their own fields, stylists, fashion vlogger, or pursue further higher studies.

## Inspiring Students

BUIITEMS is the only institute in Balochistan which is offering BS in Fashion and Textile Design till date. The Curriculum is designed in such a way which incorporates

## SCHEME OF STUDY

| Semester 1                                                                                                                                                                                    | Semester 2                                                                                                                                                                                                      | Semester 3                                                                                                                                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Functional English<br>*Islamic Studies/Ethics<br>Basic Drawing<br>Digital Communication<br>Textile Basics<br>History of Art and Culture<br>Geometry and Drafting<br>Basic Color and Design    | Communication Skills<br>*Pakistan Studies<br>Figure Drawing<br>Materials & Models<br>Textile Raw Materials<br>Hand Sewing<br>History of Art and Culture- II<br>Advance Color and Design<br>Visual Communication | Fashion Details<br>Textile CAD- I<br>Draping I<br>Pattern Making- I<br>Textile Design- I<br>Sewing- I<br>Fashion Design- I<br>History of Costume I<br>Human Anatomy |
| Semester 4                                                                                                                                                                                    | Semester 5                                                                                                                                                                                                      | Semester 6                                                                                                                                                          |
| Technical Report Writing<br>Textile CAD- II<br>Draping II<br>Pattern Making- II<br>Textile Design-II<br>Sewing -II<br>Fashion Design-II<br>History of Costume-II<br>Marketing & Merchandising | Digital Fashion- I<br>Pattern Making- III<br>Draping- III<br>Fashion Design- III<br>Textile Design- III<br>Sewing- III<br>Project Management<br>Textile Embellishment                                           | Digital Fashion II<br>Pattern Making IV<br>Draping IV<br>Fashion Design IV<br>Textile design IV<br>Sewing IV<br>Entrepreneurship<br>Internship                      |
| Semester 7                                                                                                                                                                                    | Semester 8                                                                                                                                                                                                      |                                                                                                                                                                     |
| Dissertation Writing (English)<br>Draping V<br>Product design & execution (Mini Thesis)<br>Costing & Planning<br>Design Research Methodology                                                  | Thesis Dissertation<br>Studio Execution (Thesis)                                                                                                                                                                |                                                                                                                                                                     |

The Curriculum is designed to help students to achieve the skills of professional draping, pattern making, and sewing techniques along with supporting courses., Assignments are planned with the aim of developing skills, analytical thinking, Students bring out creativity in fashion design by doing theme based projects and ending up in to a product/garment. Research is conducted on contemporary fashion to develop awareness of the local and international markets .At the time of graduation theme based collection of every student is showcase.

Prerequisites

131  
Credit  
Hours

58  
Courses

Intermediate with 45% marks from any recognized board or equivalent. Admissions are awarded on the basis of;  
NTS and Aptitude tests  
Freehand drawing  
Interview

Traveling to BUIITEMS

Quetta is the capital of the province of Balochistan. Quetta is at an average elevation of 1680 m above sea level, making it Pakistan's only high-altitude major city. Being one of the important cities of Pakistan, Quetta is easily accessible by all modern means of transportation.



By Car/Bus

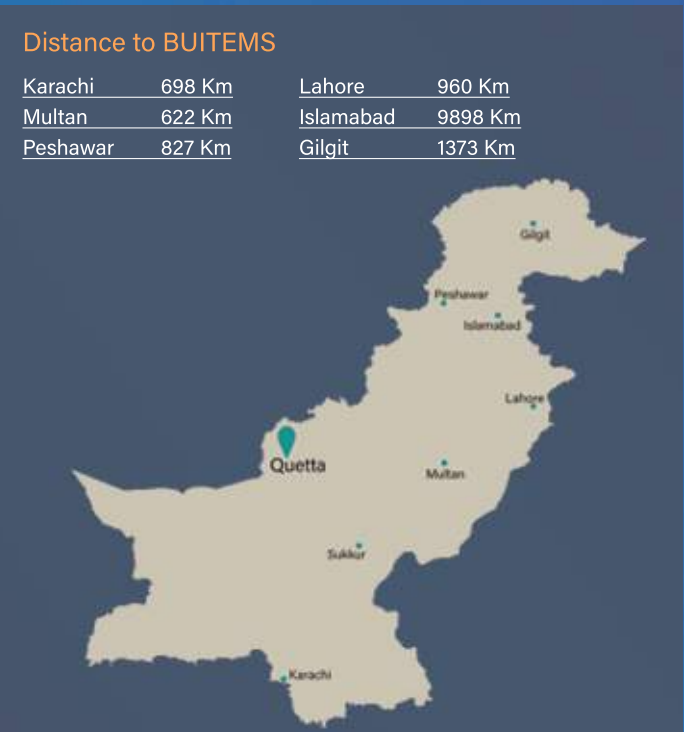
If you are planning to travel to Quetta via road, you can take the major national highway connecting to Quetta. The city is connected to Karachi at a distance of 686 km via the national highway N25. Quetta is connected to Lahore at a distance of 935 km via N70 and N5 and 980 km via N50. The distance between Quetta and Islamabad is 911 km via N50. The distance between Quetta and Peshawar is 835 km via N50 and N55. All major bus service companies provide service to Quetta from all major cities of the country.

By Air

BUIITEMS is located at a distance of 3 km 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.

By Train

Quetta Railway Station is one of the major railway stations in the country. The railway track was laid in the 1890s during the British era to link Quetta with 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 (1,170 km) and Peshawar further northeast (1,587 km). Regular train service of Pakistan railways connects Quetta to the rest of the country.



# Campus Map

- |   |                                |    |                                   |
|---|--------------------------------|----|-----------------------------------|
| A | Main Entrance to the Campus    | R  | Arfa Karim Randhawa Expo Centre   |
| B | HBL BUIITEMS Branch            | S1 | Orange Hall                       |
| C | Cafeteria                      | S2 | Pink Hall                         |
| D | Blue Chip Lab                  | S3 | Purple Hall                       |
| E | Academic/Admission Admin Block | S4 | Green Hall                        |
| F | Entrance Gate to the Campus    | T  | National Incubation Centre Quetta |
| G | Sir Syed Block A               | U  | Directorate of UA & FA            |
| H | Sir Syed Block B               | V  | Jinnah Hall                       |
| I | Hall One                       | W  | Iqbal Hall                        |
| J | Library                        | X  | Sports Complex                    |
| K | Pro VC Secretariat             | Y  | Markhor Auditorium                |
| L | Tuck Shops                     | Z  | Mosque                            |
| M | CAD/CAM Research Hall          | AA | VC Secretariat                    |
| N | JICA Hall                      | AB | Cricket Ground                    |
| O | OAG Hall                       | AC | Football Ground                   |
| P | Parking                        | AD | Medical Unit                      |
| Q | Textile Labs & Studios         |    |                                   |

