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Ex-Vice Chancellor and Rector of Aligarh Muslim University

Sir Dr. Ziauddin Ahmad was an eminent educationist, scholar and visionary of Sub-continent. He was born in 1873 in Meerut, India. At the age of 12, he passed high school with 1st Division and received Lang medal along with government scholarship at M.A.O collegiate Aligarh. In 1895 he secured 1st position in B.A and received Coveted Shachey Gold Medal at M.A.O College Aligarh. After completion of B.A in Mathematics Dr. Ziauddin Ahmad appointed as an assistant lecturer in M.AO College. He attained M.A Degree from Calcutta University while securing 1st position and in 1901 he obtained his D.Sc. degree in mathematics from the Allahabad University. For further studies he enrolled himself in Trinity College at Cambridge University. In 1904 he accomplished his goal and achieved Sir Isaac Newton scholarship; He was the first Indian to receive this honor. Later, in 1906, His thirst for knowledge took him to Gottingen University, Germany, where He completed his PhD in Mathematics.

Sir Dr. Ziauddin Ahmad served the Muslims of the subcontinent, by raising the educational standards of the Muslims and by promoting literacy amongst the Muslim community. He also worked as an Assistant Secretary of Sir Syed Memorial Fund established for the purpose of founding a Muslim University. He was inspired by Sir Syed Ahmad Khan’s approach towards modern education. After the demise of Sir Syed Ahmad Khan, Dr. Ziauddin played a leading role in the revitalisation of Muslim education in the subcontinent, where he enlightened the Muslims of India with his liberal thoughts on the educational system. No single individual after Sir Syed did more in the cause of Muslim education than Dr. Ziauddin Ahmad. He was appointed as Pro-vice chancellor of Aligarh Muslim University, and later as a Vice Chancellor, in 1935.

Sir Dr. Ziauddin Ahmad died in London on December 23, 1947 and he was buried beside Sir Syed Ahmad Khan in the Aligarh: Muslim University Mosque premise. Thus fulfilling the pledge he made to Sir Syed Ahmad Khan to serve Aligarh for His entire life.

May his life ever inspire us in the path of knowledge, human service, virtue and steadfastness.

OUR VISION

To be a prestigious institution of higher education recognized for its academic excellence and research, nurturing ethical and intellectual curiosity in the recipients of higher education and positively contributing towards the development of a knowledge-based society in Pakistan which can fully understand global challenges in the rapidly changing political, economic and social paradigm.

OUR MISSION

Ziauddin University seeks to have a futuristic approach in imparting knowledge, skills and confidence in students and to inculcate in them such critical abilities, wisdom and values which are necessary for a forward-looking coherent civil society where knowledge is disseminated and service rendered with the highest sense of moral uprightness and social responsibility to the nation, region and the world at large.
I welcome all students and their parents who are making a choice to join Ziauddin University.

Since its inception, Ziauddin University has been a dynamic and ever-growing institution. The University provides an enabling environment for quality teaching and research through its state-of-the-art facilities and renowned competent faculty members. It offers a wealth of study opportunities across a wide range of professional disciplines. I hope your time here at Ziauddin will help to provide a foundation on which you will make your contributions to a better future for yourselves and the generations that will follow.

Ziauddin University will provide you a variety of possibilities for growing and learning during the next few years, so keep yourselves prepared for availing the opportunities Ziauddin University is offering.

DR. ASIM HUSSAIN
acting vice chancellor
CHANCELLOR, ZIAUDDIN UNIVERSITY

MESSAGE FROM THE CHANCELLOR

Ziauddin University is a renowned institute for higher education in Pakistan. All the programs offered by Ziauddin University are accredited and recognized by the professional bodies like the Higher Education Commission of Pakistan, the Pakistan Medical and Dental Council, the Pharmacy Council of Pakistan, the Pakistan Engineering Council and the Pakistan Nursing Council.

The distinction of Ziauddin University is the educational atmosphere and the meaningful interaction amongst the faculty and the students creating a remarkable environment for learning. The problem-based learning method is also a hallmark of Ziauddin University. The wholehearted contribution of the faculty in the teaching-learning process is indeed commendable. These qualities attract a large number of students each year who join different disciplines of the University.

I wish to welcome all those who have an interest and want to join Ziauddin University for their academic pursuits. Time would prove that this choice was the best.

PROF. DR. PIRZADA QASIM RAZA SIDDIQUI
VICE CHANCELLOR, ZIAUDDIN UNIVERSITY

MESSAGE FROM THE VICE CHANCELLOR
### GOVERNING BODY

**Dr. Asim Hussain S.I, N.I.**  
Chancellor, Ziauddin University

**Dr. Nida Hussain,**  
Pro Chancellor

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<td>Chairman, Hilton Pharma</td>
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<td>Nawabzada Hasan Ali Khan</td>
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<td>Mr. Anwar Mansoor Khan</td>
<td>Sr. Advocate Supreme Court of Pakistan</td>
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<tr>
<td>Prof. Dr. Pirzada Qasim Raza Siddiqui</td>
<td>Vice Chancellor, University of Karachi</td>
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<tr>
<td>Prof. Dr. Mervyn Hosein</td>
<td>Principal, Ziauddin College of Dentistry</td>
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<td>Dr. Zahida Memon</td>
<td>Principal, Ziauddin Medical College</td>
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<tr>
<td>Ms. Aamina Siddiqui</td>
<td>Principal, Ziauddin College of Speech Language &amp; Hearing Sciences</td>
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<td>Ms. Afzaal</td>
<td>Principal, Ziauddin College of Nursing</td>
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<td>Ms. Sumaira Imran</td>
<td>Principal, Ziauddin College of Rehabilitation Sciences</td>
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<td>Principal, Ziauddin College of Medical Technology</td>
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<td>Ms. Manzir Ali</td>
<td>Director, Ziauddin College of Media Sciences</td>
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<td>Dr. Khalid Hussain Mahmood</td>
<td>Associate Director Academics (Clinical), Karachi Campus</td>
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<tr>
<td>Dr. Ahmed Fawar</td>
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### ACADEMIC COUNCIL

**CHAIR**  
Prof. Dr. Pirzada Qasim Raza Siddiqui  
Vice Chancellor, Ziauddin University

**SECRETARY**  
Engr. Alique Baig  
Registrar, Ziauddin University

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<td>Advisor to Chancellor/Prof. Pharmacy</td>
</tr>
<tr>
<td>Dr. Abbas Zafar</td>
<td>Dean, Faculty of Health Sciences</td>
</tr>
<tr>
<td>Dr. Ali Akbar Sial</td>
<td>Dean, Faculty of Pharmacy</td>
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<td>Mr. Syed Atta Ullah Shah</td>
<td>Chief Librarian</td>
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<tr>
<td>Mr. Syed Ali Bin Ikram</td>
<td>Chairperson, Electrical Engineering</td>
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<td>Mr. Syed Ali Bin Ikram</td>
<td>Chairperson, Bio Medical Engineering</td>
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<td>Mr. Syed Ali Bin Ikram</td>
<td>Chairperson, Software Engineering</td>
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<td>Mr. Syed Ali Bin Ikram</td>
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In 1968, the family of Dr Ziauddin Ahmad established a small maternity home in Nazimabad. Over the years, this small maternity home took shape of a busy 80-bed hospital that serves the densely populated area of Nazimabad.

In October 1995, the Sindh Assembly passed an Ordinance, the Institute could grant its own postgraduate degrees and diplomas.

In August 1994, through an Ordinance (XVII of 1994) the Government of Sindh granted the permission to establish Dr. Ziauddin Postgraduate Institute of Medical Sciences. By virtue of this Ordinance, the Institute could grant its own postgraduate degrees and diplomas.

In October 1995, the Sindh Assembly passed an Act (VI of 1995) for the establishment of Ziauddin University. Presently, following faculties/colleges are given the Charter as Ziauddin University vide.

The DCPE provides assistance in planning, developing and providing activities to physicians, nurses and other allied health care personnel in ZU. The courses would be offered to health care providers at the local, national level and regional levels in full compliance with university policies.

To maximize learning opportunities, a wide range of activities are offered which include, formal courses, seminars, workshops, video conferenc-es/ distance learning, journal clubs, grand rounds and teaching conferences, and innovative technologies such as web-based learning activities for personal skill development in medical procedures and teaching competence. All activities are conducted in compliance with the essentials of the PMDC and Accreditation Council for Continuing Medical Education and the rules and regulations of the Ziauddin University.

The primary goal of these libraries is to provide quality information and literature to support and strengthen the university academic research:

**CUFTON SITE:**
1. Prof. Noeem A. Jafarey Library covers:
   - College of Medicine
   - College of Dentistry
   - College of Pharmacy
   - College of Health Sciences
   - College of Nursing

**NORTH NAZIMABAD SITE:**
1. College Library covers:
   - College of Pharmacy
   - College of Nursing

**KEMARI SITE:**
1. College of Medicine
2. College of Medical Technology
3. College of Hospital Clinicians
4. College of Nursing

**Library Collection:**
- Printed Material: More than 15000 Books
- Journals: 79 Titles of International and 50 National Journals on related subjects
- CD/DVDs: 995

**Online Full Text Journals:** The access of more than 3000 journals including HIC databases on Bio-Medical, Engineering and Social Sciences subjects are provided to the Faculty and Students.
- Basic Sciences: 10 subjects
- Clinical Sciences: 27 subjects
- Non-Medical: 26 subjects

**Library Facilities:**
1. All ZU libraries have appropriate seating arrangements with well-equipped computers in quiet and cozy environment.
2. On-Campus: 8 libraries in different faculties and colleges at different sites.
   - Medical
   - Pharmacy
   - Health Sciences
   - Nursing
   - Dental
   - Engineering
   - Media

**Library Services:**
- Current Content Service
- The library regularly disseminates the information of each incoming book and journal with their table of contents (and full text if available) to the all faculty members.

**DEPARTMENT OF EDUCATION DEVELOPMENT (DED):**
The Department of Education Development (DED) aims to enhance quality in academic activities of all health care disciplines of ZU with vision to bring recognition both at national & international level through Innovations, Leadership & Research. The scope of its activities includes undergraduate and postgraduate education and capacity building through educational services and consultations to the faculties and disciplines in all the three sites. Range of these services encompasses review of curricula, teaching & assessment. To accomplish these tasks; DED works in collaboration with the respective Deans, Principals, Associate Deans, Department Chairs, Program Directors, and various committees on curriculum and assessment. Our main focus is on student centered learning by providing them quality education in a conducive learning environment. To stay them at par with international standards; DED is actively working on themes of patient safety and ethics in their curricula. To ensure the quality standards; DED is working on self-assessment of undergraduate medical program according to the basic & quality standards of World Federation of Medical Education (WFME).

DED promotes Continuous professional development as a mainstay of its mission by organizing educational workshops as a regular activity at all three sites.

**UNIVERSITY LIBRARIES:**
The Ziauddin University has following 8 libraries in different faculties and colleges at different sites.

**PROFESSIONAL ACCREDITATIONS:**
Ziauddin University is accredited from the following bodies:
- Pakistan Medical and Dental Council (PMDC)
- Pakistan Council of Pharmacy (PCP)
- Pakistan Nursing Council (PNC)
- Pakistan Engineering Council (PEC)

**DEPARTMENT OF CONTINUING PROFESSIONAL EDUCATION (DCPE):**
The Ziauddin University department of Continuing Professional Education is committed to serving through programs of excellence in education, patient care, research and other public service initiatives, which advance the health of the general public. Continuing professional education provides opportunities for the health care professionals to continue the learning, utilizing adult learning principles and available technology.

Major responsibilities of the Program are:
- To identify the educational needs and interests of the professionals.
- To provide learning opportunities for new knowledge and skills.
- To partner with other healthcare facilities and educational institutions to promote public health.
- To heighten the health professional’s awareness of the need for compassion in patient care and the dignity of human life.

The DCPE provides assistance in planning, developing and providing activities to physicians, nurses and other allied health care personnel in ZU. The courses would be offered to health care providers at the local, national level and regional levels in full compliance with university policies.

To maximize learning opportunities, a wide range of activities are offered which include, formal courses, seminars, workshops, video conferenc-es/distance learning, journal clubs, grand rounds and teaching conferences, and innovative technologies such as web-based learning activities for personal skill development in medical procedures and teaching competence. All activities are conducted in compliance with the essentials of the PMDC and Accreditation Council for Continuing Medical Education and the rules and regulations of the Ziauddin University.

**FINANCIAL AID SCHEME:**
The mission of the financial aid scheme is to enable needy and deserving students to pursue their education. Ziauddin University has initiated this scheme to provide financial assistance to the students with limited resources

**UNIVERSITY POLICIES:**
- Ziauddin University’s policies are designed to provide guidance and structure for its operations. These policies cover a wide range of areas, including academic and administrative matters.
- The policies are intended to ensure that the university operates in a transparent, fair, and ethical manner.
- They are regularly reviewed and updated to reflect changes in the university’s environment and objectives.

**UNIVERSITY DISCIPLINE:**
- Ziauddin University has a strict code of conduct for all members of the university community. This code is designed to maintain a safe and respectful learning environment.
- Violations of the code are taken seriously, and appropriate action is taken in accordance with the university’s policies.

**UNIVERSITY RESOURCES:**
- Ziauddin University is committed to providing students with the resources they need to succeed.
- These resources include academic support, career services, and learning tools.
- The university also provides opportunities for students to engage in extracurricular activities and cultural events.
faculty and research students.
• ZU Faculty Publication Information

Information of ZU faculty and students published papers is disseminated among the faculty members.

• Anti-plagiarism Software (Turnitin):
  Check the originality and issue the certificate for the ZU Research Work, e.g. Ph. D., M. Phil, M.D., M.S., M.C.S.; M.C.H, etc. these and other paper & publication before publishing or submitting in the conference.

• Training Provided to the Library users:
  Training at Literature Search, Reference Management, Citation Verification, and Anti-Plagiarism Software (Turnitin) is provided to the faculty and students.

• Newspaper Clipping:
  • Newspaper clipping of 16 newspapers on 15 related subjects is being done on daily basis.
  • Daily events and Health & education related news display on library notice board

• Public Services:
  More than 100 library users contact to the librarians on daily basis for different purposes e.g. literature search (printed and online material), literature management, Theses Formatting, Similary check, Reprographic services, reference services, ILI, DD, Printing issues, Issues in users’ computer (hardware & software) handling, queries about different services, Miscellaneous and petty support

Library Operations:
• To automate the library literature information and library services the KOHA software is being used in ZU Libraries. The KOHA software is also being used as database and to develop the networking systems.

• National Library of Medicine (NLM) for Literature Classification and Anglo-American Cataloging Rules (AARC2) and MARC 21 are being used for literature cataloging.

Library Staff:
Chief Librarian:
Syed Asifullah Shah
Abdul Rakhim

Deputy Librarian:
Syeda Khawar Zaheer
Aftab Hussain Alia
Fareed, Zubaida
Tehreek, Tabinda
Naveed, Abida Younus
Rukhsar Fareed, Bisma
Khan and Hira Khan.

Assistant Librarian:
Syed Asifullah Shah
Abdul Rakhim

Library Timings:
Monday to Friday
8:30 am to 10:00 pm
Saturday
8:30 am to 4:30 pm

The ZU faculty maintains active research laboratories that are exploring existing questions, spanning from the most basic to the most translational aspects of health sciences research represented by the National and International publications in reputed journals. Research days, conferences and workshops are a series of events which are hosted to showcase outstanding research both for our own community as well as probable industry collaborators. Everybody should feel free to communicate directly with faculty to explore the availability of research opportunities and specific areas of investigation. Department of research through its offices of research innovation & commercialization (ORIC), Basic Research Coordination (BIRC), publication and grants are the central coordination body for research at Ziauddin University which supports the overall drive to conduct the scientific investigations based on critical analysis.

7. College of Rehabilitation Sciences

• Research Ethics Course Work

Courses and workshops to facilitate physicians, researchers, nurses, and technicians with skills on related subjects.

Research Excellence in all fields of study is central to the mission of Ziauddin University and a prime priority; as the key element to success of the University’s academic profile that need to be preserved.

Education at ZU would not be complete without its vital research community. The Health Sciences Research Program encompasses several faculties and departments across ZU campuses that contribute rich atmosphere. The College of Medicine, Dentistry, Nursing, Rehabilitation and Faculty of Pharmacy and Engineering, others offer unparalleled opportunities for interdisciplinary cooperation in health sciences education and research. These faculties are particularly important in linking our researchers together and offer a venue to link scientists working on basic biomedical research to physicians working on problems that directly affect patient care. ZU community is in continued pursuit of ever greater accomplishments in research through our commitment to innovation, excellence and quality. We share new knowledge for educating and inspiring tomorrow’s leaders as University is all about generation of new knowledge through research.

The ZU faculty fulfills the mission of education, research and service to society. Our primary goal is to develop the knowledge and skills in assessing and evaluating a patient’s health needs to provide an opportunity for students to gain awareness of the need for compassion in patient care and the dignity of human life.

The hospital is equipped with state-of-the-art technologies such as web-based learning activities for continuous professional education (WFME). Continuing professional education (CPE) is an ongoing process where healthcare professionals update and enhance their knowledge and skills in assessing and evaluating a patient’s health needs. The primary goal of these libraries is to provide guidance on experimental design and technician training.

The Department of Educational Development (DED) aims to enhance quality in academic and research activities of the Ziauddin University. DED promotes Continuous professional development (CPD) which is the process of lifelong learning through research and creation of new knowledge.

Ensuring that research meets the highest ethical and quality standards through open transparent processes.

The Department fulfills the mission of education, research and service to society. Our primary goal is to develop the knowledge and skills in assessing and evaluating a patient’s health needs to provide an opportunity for students to gain awareness of the need for compassion in patient care and the dignity of human life.

The hospital is equipped with state-of-the-art technologies such as web-based learning activities for continuing professional education (WFME). Continuing professional education (CPE) is an ongoing process where healthcare professionals update and enhance their knowledge and skills in assessing and evaluating a patient’s health needs.

In December 2005, Ziauddin Medical University (ZMU) was established by the Government of Sindh, which is the first state medical university in Sindh. It is located in the densely populated area of Nazimabad.

Sir Dr. Ziauddin Ahmad’s vision was transformed into a reality with the establishment of the Karachi Medical and Dental College (KMDC) in 1944. The Government of Sindh granted the KMDC a charter of incorporation under the Charter of Incorporation Act, 1943. In 1944, the Government of Pakistan approved the KMDC as a public university.

The primary goal of these libraries is to provide information of ZU faculty and students published papers.

Ziauddin University has following 8 libraries in campus and also visit North site in the various sub-campuses.

1. Prof. Naeem A. Jafarey Library covers:
   • Prof. Dr. Bushra Wasim, MBBS, FCPS, PhD (Director Research & Meritorious Professor)
   • Prof. Dr. Talat Mirza, MBBS, MPhil, PhD (Dean Research Lab Faculty Coordinator)
   • Prof. Dr. Rehan Ahmed Siddiqui, PhD (Asst. Professor)
   • Prof. Dr. Shumaila Usman, PhD (Asst.Professor)
   • Waqas Zulfiqar, M.Sc, M.PH, PhD Research Fellow (Research Officer)

2. KDLB Hospital Library covers:
   • Prof. Dr. Fouzia Latif, FCPS (Histopathology Lab)

3. College of Medical Technology
   • Research Ethics Course Work

4. College of Media Sciences
   • Clinical Sciences: 27 subjects

5. College of Rehabilitation Sciences
   • Research Ethics Course Work

6. College of Pharmacy
   • Research Ethics Course Work

7. College of Rehabilitation Sciences

8. College of Rehabilitation Sciences

DEPARTMENT OF RESEARCH

INTRODUCTION

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ZU community is in continued pursuit of ever greater accomplishments in research through our commitment to innovation, excellence and quality. We share new knowledge for educating and inspiring tomorrow’s leaders as University is all about generation of new knowledge through research.

The ZU faculty maintains active research laboratories that are exploring existing questions, spanning from the most basic to the most translational aspects of health sciences research represented by the National and International publications in reputed journals. Research days, conferences and workshops are a series of events which are hosted to showcase outstanding research both for our own community as well as probable industry collaborators. Everybody should feel free to communicate directly with faculty to explore the availability of research opportunities and specific areas of investigation. Department of research through its offices of research innovation & commercialization (ORIC), Basic Research Coordination (BIRC), publication and grants are the central coordination body for research at Ziauddin University which supports the overall drive to conduct the scientific investigations based on critical analysis.

VISION

To be recognized as the icon of innovative, leading edge translational and clinical research in health care

MISSION

The Department facilitates research that enhances the knowledge building environment of Ziauddin University by:

• Advancing research and developing the University’s reputation as the most renowned private sector academic research based institution.

• Cutting edge clinical and translational research bringing medical innovation to patients and industry

• Resident’s and fellows independent research projects for the acquisition of degrees and lifelong learning through research and creation of new knowledge

• Ensuring that research meets the highest ethical and quality standards through open transparent processes.

CORE FACILITIES

The Research Laboratories (MDLR 1 & MDLR 2) at Ziauddin University provide:

• Cell and Molecular Biology, Genomic and Proteomic techniques

• Wet lab bench space

• Services include training on all equipments, guidance on experimental design and technician assistance in all equipments operation

• Cell culture facility

• Imaging facility with high resolution microscopy

• Immunohistochemistry facility

• Pharmacy laboratories (MDLR3 & MDLR4)

• Virtual lab facility connected to north site pathology & genetical laboratory

Research Lab Faculty:
• Prof. Soadda Baig, PhD (Associate Dean Research / Director Lab)
• Dr. Sharmila Munir, PhD (Assoc. Prof/Addi- tional Director Lab)
• Dr. Rehan Ahmed Siddiqui, PhD (Asst. Professor)
• Dr. Shumaila Usman, PhD (Asst.Professor)
• Waqas Zulfiqar, M.Sc, M.PH, PhD Research Fellow (Research Officer)

ANATOMIC & CLINICAL PATHOLOGY LABORATORIES AT NORTH SITE

This is a state of the art diagnostic facility at ZU with the availability of high technology equipments additionally for research purposes. The postgraduate students avail the services of CMRC campus and also visit North site in the various sub specialties through coordinators mentioned

DEPARTMENT OF RESEARCH
To be recognized as the icon of innovative, leadership body for research at Ziauddin University which its offices of research innovation & commercialization communicate directly with faculty to explore the availability of research innovation and commercialization in health sciences education and research. The College of Medicine’s reputation as the most renowned private sector medical college is in continued pursuit of excellent research in all fields of study. The Pharmacy Laboratories MDRL3 & MDRL4 offer state of the art facility connected to north site and is all under the administration of Prof. Dr. Rehan Ahmed Siddiqui, PhD. Ziauddin University provides a variety of research laboratories, including Research Laboratories (MDRL 1 & MDRL 2) at the College of Medicine, the Pharmacy Laboratories, and the Health Sciences Research Laboratories. The Pharmacy Laboratories MDRL3 & MDRL4 also provide research support if required in the projects.

**ZIAUDDIN UNIVERSITY HOSPITAL FACILITIES FOR RESEARCH**

- **Dr. Ziauddin Hospital, Clifton Campus**
- **Dr. Ziauddin Hospital, North Nazimabad Campus**
- **Dr. Ziauddin Hospital, Kemari Campus**
- **Dr. Ziauddin Cancer Hospital, North Nazimabad**
- **Dr. Ziauddin Maternal and Child Health Care Centre, Nazimabad**
- **Primary Health Care, Sikandarabad**

**RESEARCH ACTIVITIES**

Department of Research has designed Certificate Courses and workshops to facilitate physicians, junior faculty and mid-career clinicians, graduate & undergraduate students.

**A) MONTHLY ACTIVITIES**

- Research Methodology Courses & Workshops
- Research Ethics Course Work
- Application of Power Lab in Bio Medical Research
- End of the Year Award for faculty and students

**B) YEARLY ACTIVITIES**

- National and International Health Sciences Thematic Conferences
- International conference on “Rehabilitation: Translational, Clinical and Research Perspectives” 2018
- Symposium / Distinguished Lecture Series
- Hands on Workshops

**RESEARCH MONITORING AND PROMOTION COMMITTEES**

- **The University Research Council (URC)**
- URC monitors and reviews the policies relating to the University’s research activities, including research and research training, internationalization and international reputation and their management.

**Members:**

- Vice Chancellor (Chair)
- The Dean of Research (Deputy Chair)
- All Faculty Deans (or Delegate)
- Associate Dean Faculty Affairs

**ORIC OFFICE**

Office of Research, Innovation & Commercialization (ORIC) is operational at the Ziauddin University, Karachi. ORIC was established at the University in 2015 based on a proposed guidelines of the Higher Education Commission (HEC), Islamabad for all Universities/DAs of Pakistan.

ORIC is the backbone of Research Department and is a hub of all activities particularly to accelerate the accomplishment of high quality research by fostering linkages establishing connectivity between intellectual and professionals with a bench to bedside or bench to industry approach. Knowledge and research driven economy is therefore innovation, commercialization and entrepreneurship.

The meaningful and innovative research is expected to result in trade and industry development with the desirable economic growth. Therefore, the commercialization of academic research is related to innovation and entrepreneurship with transfer of knowledge to industries and organizations. ORIC also works for revenue generation through fruitful research with practical implications. As technologies have grown more sophisticated and emerging industries have become more high-tech, Universities have become more important players in the process of invention, innovation and commercialization.

Office of Research, Innovation & Commercialization (ORIC) provides end to end services for all matters pertaining to research & development, innovation, inventions, commercialization, patents, collaborations, amaging seminars/collabora/symposium/conferences/workshops, etc. and/or research publication honorarium. By and large Office of Research, Innovation & Commercialization (ORIC) is the focal point for all research related activities of the University. ORIC facilitates the University researchers (faculty members and scholars) to promote their research work both nationally and internationally.

**PUBLICATION OFFICE**

The Research Department facilitates and promotes the research publications to provide access to the faculty, graduate and undergraduate students of Ziauddin University and other National Universities through the following PMD-CHEC recognized journals:

- The Pakistan Journal of Medicine and Dentistry (PJM&D)
- Pakistan Journal of Rehabilitation (PJR)

**NEW INITIATIVES INTERNATIONAL AND NATIONAL COLLABORATIONS**

The Research Department’s overarching aim in supporting international research collaboration is to maximize ZU’s contribution to and benefits from international and national research collaborations, partnerships.

- **University College of London and King’s College, London UK**
- **Karolinska Institute, Sweden**
- **University of Karachi**
- **Aga Khan University**
- **Boğaziçi University**
- **Dow University of Health Sciences**

**RESEARCH METHODOLOGY COURSE & WORKSHOPS**

The track offering extended research methodology courses and workshops at North site has been initiated by the Research Department in collaboration with the Dept. of Community Health Sciences (CHS).

**SUMMER INTERNSHIP/ TRAINING PROGRAM**

Intensive training courses are designed to expose students to state of art techniques. It is meant to develop skills and building tools for conducting independent research in Health Sciences. This program helps in mentoring the career development, awareness and interests of University undergraduates / Faculty in Health Sciences Research.

**CORE FACILITY SERVICES**

We will shortly be offering core lab services to the researchers at national level at an affordable cost such as protein isolation, separation and quantification beside SDS-PAGE, 2-D electrophoresis, immune blotting, immune fluorescence, PCR Gel Electrophoresis etc. and/or research publication honorarium.
health care supports the overall drive to conduct the scientific investigation. Department of research through communication directly with faculty to explore the available collaborators. Everybody should feel free to come from the most basic to the most translational.

The ZU faculty maintains active research laboratories and departments across ZU campuses that preserve.

INTRODUCTION

Campus and also visit North site in the various sub-Facilities for research:

• Virtual lab facility connected to north site
• Pharmacy laboratories (MDRL3 & MDRL4)
• Imaging facility with high resolution microscopy
• Services include training on all equipments, assistance in all equipments operation, guidance on experimental design and technician management.

Research ethics course work

• Research methodology courses & workshops

B) YEARLY ACTIVITIES

• Developing research question and hypothesis
• Sample size calculation and data analysis, SPSS
• Workshops on clinical trial
• Plagiarism software hands on workshop

RESEARCH MONITORING AND

• Board of Advanced Studies and Research (BASR)
• Other Committees are:

DEPARTMENT OF RESEARCH

• Prof. Dr. Talat Mirza, MBBS, MP, PhD (Dean Research & Mentoring Professor)
• Prof. Dr. Bushra Waiz, MBBS, FCPS, PhD (Director ORIC)
• Dr. Shamim Mustafa, PhD. (Assoc.Prof.&PhD Coordinator)
• Ms. Ambreen Waiz, MSc (Biostatistician)
• Dr. Rehan Ahmed Siddiqui, PhD (Assistant Professor)
• Dr. Shumaila Usman, PhD (Assistant Professor)
• Mr. Moazzam Ali Shahid, MPhil (Research Officer)

Qualitative ENHANCEMENT CELL

Ziauddin University has always played a leadership role in accepting and adopting best practices in the field of Education. Quality Enhancement Cell (QEC) of Ziauddin University has the commitment to ensure that educational provision of all the constituent institutions of the university are operating with appropriate academic standards as provided by the respective accrediting bodies and are taking deliberate steps to bring about continual improvement in learning experiences of the students.

The mission of QEC of Ziauddin University is to bring advancement in the community of learning by ensuring incessant improvement in the quality of academic programs through accountability, review of design and policies, systematic documentation and analysis of curriculum, aiming to identify and support best practices in the field of education.

At Ziauddin University, quality assurance is built on the principles of continuous improvement with the involvement of all the stakeholders. QEC has developed a culture which recognizes the importance of quality and quality assurance in approval, monitoring and periodic review of academic programs. Review of academic programs is carried out by adopting HEC guidelines for self-assessment. Online facility is available for Student course evaluation, teacher’s evaluation survey and faculty course review report. Graduating student survey, alumni survey and employer’s survey are also employed as important tools in this regard.

An explicit follow-up procedure is in place to review the actions taken by each program subsequent to the Self Assessment process.

Internal audit of the university’s academic and administrative departments is also carried out for ensuring compliance with the Quality Assurance Framework set by the various accrediting bodies. QEC spearheads Institutional Performance Evaluation of Ziauddin University by HEC and is responsible for meeting the requirements of HEC with regard to quality assurance and providing them with the required data.

QEC provides service to Ziauddin University graduates by coordinating and managing data entry of all the degree programs of the University at Pakistan Qualification Register (PQR). PQR is an online service from HEC which helps to ensure quality of degrees/qualifications to all the stakeholders, international recognition of the degrees/qualifications, recognition of credit transfer process, online attestation of the degrees and national and international scholarships.

In order to keep abreast with the advancement in Higher Education sector and for continuous Quality Improvement, QEC staff actively participates in the national events organized by HEC and other higher educational institutions of Pakistan.
NATIONAL AND INTERNATIONAL LINKAGES

Ziauddin University fosters long-term partnerships with various educational institutions/universities/organizations at national as well as international levels. These partnerships provide bilateral opportunities for scholarly collaboration, curricular reform, faculty development and faculty and student exchanges, video conferencing; and person-to-person interactions to improve the quality of teaching, learning and education. Ziauddin University has developed linkages with the following:

1. Agreement on collaboration between Ziauddin Medical University and Qaiser Siraj Memorial Trust, Islamabad Pakistan, (4th Aug, 2003)
2. Memorandum of Understanding between Sobhraj Maternity Home and Ziauddin Medical University, (14th Sep, 1995)
3. Department of family medicine, Ziauddin Medical University with HO and Sindh TB Control Programme to assist implementation of DOTS, (25th Aug, 2004)
4. MOU between Ziauddin University and Speech and Hearing association of Pakistan (SHAP), (22nd Sep, 2004)
5. MOU between Department of family medicine and Community Health Sciences, ZU and Essay Mohammad Ali. (14th March 2007)
6. MOU between National Institute of Blood Diseases and Bone Marrow Transplant (NIBD) and Ziauddin University, (21 Aug, 2008)
7. MOU between Ziauddin University and Intouch Advisors, Inc. Houston, USA, (28 July, 2009)
8. MOU between Ziauddin University and Universiti of Bedfordshire, (27th July, 2009)
9. MOU between Ziauddin University and Peoples Medical College for Girls (PMMCG), Nawabshah, (20, Feb, 2010)
11. MOU between Ziauddin University and The international Adjunct Physical Therapy Faculty (IAPTF), (13th Sep, 2015)
12. MOU between Ziauddin University and Fatima Jinnah Dental College, ( 19th June, 2015)
13. MOU between Ziauddin University and Quaout College of Medicine and Dentistry, (31st July, 2015)
14. MOU between Ziauddin University and INJAZ Pakistan, (18th Aug, 2015)
15. MOU between Ziauddin University and Pakistan Microfinance Network (PMN), (20th Aug, 2015)
16. MOU between Ziauddin University and European Society for Translational Medicine (ESTM), (1st Feb, 2016)
17. MOU between Ziauddin University and Valparaiso University, (4th May, 2016)
18. MOU between Ziauddin University and I am Karachi (IJK), (9th Aug, 2016)
19. MOU for Clinical Collaboration between Ziauddin College of Speech Language & Hearing Sciences, Ziauddin University and Karachi Down Syndrome Program, (1st June 2017)

Memberships:
Ziauddin University is a growing university and endeavor to make its existence felt at international forums of higher educational bodies. Learning by sharing experiences with international higher education bodies is used to improve the quality of learning experience of our students. Ziauddin University is enjoying the membership of:
- Association of Commonwealth Universities
- Asia Pacific Quality Network
- International Association Of Universities
- The Talloires Network
Ziauddin University has under its umbrella the Faculty of Health Sciences (FHS) which strives for advancement of societal health and well-being. We train physicians, nurses, physiotherapists, speech therapists, health care researchers, occupational therapists, physician assistants and midwives to work together and provide the finest patient care.

Our commitment to excellence is demonstrated through our faculty members who are nationally and internationally recognized experts in their fields. In addition, students benefit from learning opportunities that go beyond the classroom to include experiential education in a range of settings from laboratories to community health centers.

We are known for implementing small group, problem-based education, with a focus on self-directed, life-long learning, as well as the development of evidence-based medicine.

Integral to our mission is our extensive research program. Our pioneering education advances and our excellence in world-class research has consistently placed Ziauddin University among the medical universities in the region. We look to translate what we learn in our laboratories into health care practice and are committed to improve the health standards for our people.

The faculty is involved in facilitating various programs in our colleges including:

- College of Medicine
- College of Dentistry
- College of Rehabilitation Sciences
- College of Speech Language & Hearing Sciences
- College of Nursing
- College of Medical Technology
Ziauddin Faculty of Medicine prepares its students to become skilled practitioners, researchers and teachers with leadership potential. They develop skills to deal with health problems holistically and solve them at individual, family and community levels, through an innovative programme, with emphasis on individual attention in small teaching/learning groups. The undergraduate clinical programmes are community-oriented and address priority healthcare needs of the country. This enables students to acquire the art and skill of probing scientifically into health and related problems of individuals and communities.

Students are exposed to a variety of learning strategies to provide experiential learning through a multi-disciplinary approach to patient care.

The Postgraduate programme in Basic Health Sciences is highly developed and has a structured curriculum which focuses on the growing need for research oriented medical teachers trained in modern teaching and learning strategies.

To meet the challenges posed by the exponential growth of information, students assume responsibility of their own learning, using student centred learning strategies such as Problem-Based Learning (PBL) and Case Based Discussions, which also promote self-learning skills and team work. Research projects, relevant to national and community needs, are also encouraged.

Ziauddin Faculty of Medicine offers following undergraduate and postgraduate programmes which are recognised by the Pakistan Medical and Dental Council (PMDC), the regulatory body responsible for issuing license to practice medicine and the Higher Education Commission (HEC):

**BACHELOR OF MEDICINE, BACHELOR OF SURGERY (MBBS)**

**M.PHIL**

**PHD IN HEALTH SCIENCES**

**DIPLOMA/MASTERS IN HEALTH MANAGEMENT**

**DOCTOR OF MEDICINE IN CLINICAL SCIENCES**

**MASTER OF SURGERY IN CLINICAL SCIENCES**

**CLINICAL DIPLOMAS**

**DOCTOR OF MEDICINE IN CLINICAL SCIENCES**

**DIPLOMA/MASTERS IN HEALTH MANAGEMENT**

**PH.D IN HEALTH SCIENCES**

**M.PHIL**

**BACHELOR OF MEDICINE, BACHELOR OF SURGERY**

The best graduate of this year is Aena Saeed. She has been awarded with Sir Ziauddin Gold Medal for her extraordinary academic performance in the field of Medicine. She has achieved distinction in 9 subjects.

Aena Saeed has shown immense enthusiasm towards her studies and research. Her diligence and commitment is meritorious which makes her elegant and superior is from other magical graduates.

She is one of the distinguished members of research community and has played an active role in community health services.

**AINA SAEED**

**MBBS (GOLD MEDALIST)**

**ZIAUDDIN UNIVERSITY**

**MISSION**

Develop in each student, the virtues and values of humanity, dignity and worthiness; a desire and capacity for critical reasoning; an appreciation and understanding of the social sciences; and the ability to communicate. Special emphasis is placed on promoting self-directed learning and developing lifelong learners and leaders in health professions with the skills to acquire new knowledge and meet the challenges of an exponential growth of information.

**COMPETENCIES OF ZU GRADUATES:**

- Provide safe patient care holistically
- Integrate basic science concepts to clinical situations
- Communicate effectively
- Collaborate with other team members
- Contribute as researcher
- Evidence based practice
- Role model professionalism

**EXIT LEVEL OUTCOMES**

Refer Study guides

**INTRODUCTION**

Ziauddin Faculty of Medicine was established in 1996. It is strategically located within the university site at Clifton, Karachi. Medical teaching programmes are spread over three main tertiary care hospitals in different parts of the city. These hospitals are well equipped with advanced diagnostic, monitoring and treatment facilities. Ziauddin Group of Hospitals includes:

- Dr. Ziauddin Hospital, North Nazimabad Site: a 350 bedded hospital
- Dr. Ziauddin Hospital, Clifton Site: a 150 bedded hospital
- Dr. Ziauddin Hospital, Kemari Site: a 150 bedded hospital

Other clinical learning sites include:

- Saznah Maternity Home
- Primary Health Care Centres, Skanderabad
- Dr. Ziauddin Cancer Hospital, North Nazimabad
- Dr. Ziauddin Maternal and Child Health Centre, Gol Market Nazimabad

Ziauddin Faculty of Medicine prepares its students to become skilled practitioners, researchers and teachers with leadership potential. They develop skills to deal with health problems holistically and solve them at individual, family and community levels, through an innovative programme, with emphasis on individual attention in small teaching/learning groups. The undergraduate clinical programmes are community-oriented and address priority healthcare needs of the country. This enables students to acquire the art and skill of probing scientifically into health and related problems of individuals and communities. Students are exposed to a variety of learning strategies to provide experiential learning through a multi-disciplinary approach to patient care.

The Postgraduate programme in Basic Health Sciences is highly developed and has a structured curriculum which focuses on the growing need for research oriented medical teachers trained in modern teaching and learning strategies.

To meet the challenges posed by the exponential growth of information, students assume responsibility of their own learning, using student centred learning strategies such as Problem-Based Learning (PBL) and Case Based Discussions, which also promote self-learning skills and team work. Research projects, relevant to national and community needs, are also encouraged.

**PROGRAMMES OFFERED**

- BACHELOR OF MEDICINE, BACHELOR OF SURGERY (MBBS)
- M.PHIL
- PHD IN HEALTH SCIENCES
- DIPLOMA/MASTERS IN HEALTH MANAGEMENT
- DOCTOR OF MEDICINE IN CLINICAL SCIENCES
- MASTER OF SURGERY IN CLINICAL SCIENCES
- CLINICAL DIPLOMAS
At Ziauddin College of Medicine, a student is identified as an adult learner and is expected to utilise inborn capabilities to adapt and understand the rapidly changing academic atmosphere around the world.

Academic schedule for the MBBS degree programme reflects the innovative system-based course. In the first three years of training, a semester programme has been introduced and each year comprises two semesters. For the clinical training and experience the students are rotated through all three hospitals affiliated with the University.

Ziauddin College of Medicine has taken the initiative of improving quality of medical education by fostering adult learning styles. Catering to the requirements of the students and early introduction of clinical experience. In order to facilitate student learning, the basic medical sciences curriculum offers multiple instructional and assessment strategies.

The course content is presented with a Body System based Modular approach which is in line with regulations of the Pakistan Medical and Dental Council for MBBS degree. Emphasis is given to the development of conceptual understanding and the ability to construct knowledge for oneself. The students are actively involved in their learning process and assessment involves examining the learner's entire conceptual network, not just focusing on discrete facts and principles.

Curriculum reviews are taken place critically on regular basis to incorporate content updates in the form of themes for quality improvement purposes. Patient Safety is one of these integrated themes introduced in MBBS curriculum.

Faculty from Basic Health Sciences (BHS), Community Health Sciences (CHS) and Clinical Sciences are collaboratively engaged in teaching programmes. As a result, students develop a comprehensive understanding and holistic approach to recognize and resolve healthcare problems.

The primary health care programme run by the university (PHC) serves as educational site for community based training. The PHC programme is a unique prototype of partnership between academia, local NGOs, government and international NGOs for education, research and service.

**ELECTIVES**

For MBBS students, elective experience is mandatory. It should be acquired from institutions which may not be a part of the Ziauddin University system. Students have an option to undergo this in Pakistan or overseas. This experience allows them a wider exposure and enables them to discover their specialized field of interest. The financial responsibility of completing electives is undertaken by the students. The Dean's Office facilitates placement of students for this purpose.

**LEARNING AND TEACHING STRATEGIES**

**SELF-DIRECTED LEARNING**

The college prepares students to become independent, self-directed, life-long learners. The introduction of student-centred learning strategy is a step towards promotion of critical thinking and problem solving skills. Students are encouraged to consult a wide selection of learning resources including books, journals, models, computer assisted learning programmes and the Internet. In the introductory course students learn how to use library and computer facilities effectively.

**PROBLEM-BASED LEARNING (PBL)**

PBL is the leading strategy adopted for learning at the Ziauddin College of Medicine. This approach is characterised by:

- Providing students an opportunity to learn how to deal with the problems they face in later professional practice.
- Emphasis on self-motivation and responsibility for learning.
- Training for learning professional skills such as leadership and team work.

The aim of problem-based learning is to overcome various drawbacks in the traditional methods of instruction for instance passive role of students during lectures, irrelevant subject matter in curriculum, lack of integration between disciplines, insufficient preparation of students for higher education after completing MBBS and in particular, the difficulties experienced by many medical graduates in applying what they have learned.

Through problem-based learning, students are encouraged to seek information and progressively direct their own learning. These skills provide students the basis for a lifetime of medical practice.

**CLINICAL TRAINING**

A balance between hospital, ambulatory care, and community settings is essential for a meaningful experience of exposure to patients from different geographical and economic backgrounds.

A squatter settlement adjacent to the university, in Skanderabad, provides community-based setting and the out-patient care for patients belonging to a lower socio-economic class. Family Medicine Health Centre (FMHC) is a low-cost outpatient clinic for under-privileged population living close to the CIphon site. These sites provide better opportunities for learning for students as they come in contact with a varying range of people and patients with health problems.

Students begin their clinical experience from the third year. After an introductory course they gain experience in emergency. PHC clinics as well as out-patient and in-patient.

The fourth year is mainly spent at Kemari site with fully developed ENT, Ophthalmology departments and clinical disciplines of Medicine and Allied, Surgery and Allied, Paediatrics and Gynaecology and Obstetrics.

In the Final fifth year, students are based in North Nazimabad site where a comprehensive attachment in Medicine, Surgery, Paediatrics and Gynaecology and Obstetrics aims at a professional problem oriented approach to make them ready for taking care of patients when they graduate. They are encouraged to make their own presentations and participate in discussions as well as gain knowledge from dedicated lectures and group tutorials on selected topics. The hospital's state of the art diagnostics and intensive care facility helps polish their clinical learning.

**STUDENT ASSESSMENT**

**MODES OF ASSESSMENT**

Assessment of knowledge, skills and attitudes is accomplished through various modes of assessment. MCQ-one best type, modified essay questions, Objective Structured Practical/ Clinical Examinations (OSPE/OUCE) are used to assess skills of practical/critical attitudes with underpinned knowledge background.

**CONTINUOUS ASSESSMENT POLICY**

Securing minimum scores in an academic year requires consistency in Continuous Assessments. The minimum level is determined by a student’s achievement in module examinations, which
include written tests, practical assignments and other academic activities. Student eligibility for Summative Examinations is determined by an individual’s attendance and performance in test and examination in a semester or academic year. Each student requires at least 80% attendance. Student performance in each year is judged by formative (continuous) and summative (end of year) assessments.

PROFESSIONAL EXAMINATIONS
The first three academic years are semester based which are in line with the PMDC/HEC. The following two years are currently based on annual examination system. A consistent record of satisfactory performance is necessary for eligibility to MBBS Final Assessment. Each student’s performance is reviewed by the concerned department which also determines eligibility for the certifying examination. Progression to second, third, fourth and fifth year is regularly determined by achieving satisfactory performance in the respective academic year.

I. GENERAL CRITERIA FOR ADMISSION
The general criteria for students seeking admission to MBBS degree programme are as follows:
Minimum 60% marks in Pre-Medical group of Higher Secondary Certificate Examination held by a recognized Board of Intermediate Education in Pakistan. Students (Local and Overseas) are required to take a written test (MCQs) and appear for an interview.

Proficiency in English language, both in written and verbal expression is required.

Students with GCE Cambridge/London, Advance Level (A-Level), American High School Diploma, and other equivalent Certificates or Diplomas, an equivalence to HSC (Pre Medical) will be required as per the guidelines of HEC

II. LOCAL STUDENTS
Documents to be submitted at the time of interview for admission:
• One copy of mark sheets of Secondary School Certificate (SSC Part I and II).
• One copy of Secondary School Certificate (if available).
• One copy of mark sheets of Higher Secondary Certificate (Part I and II). If results of HSC Part II have not been declared by the concerned board, admit card of HSC Part II examination must be submitted.

- For students with GCE Cambridge/London, one copy each of the transcript of “O” level and “A” level examination results.
- BCC equivalence certificate for O & A Levels/any other international qualification results.
- One copy of National Identity Card (in case NIC is not available, “B” form with a copy of Parent’s / Guardian’s NIC must be submitted).

Student Selection
Final selection of local students is decided on the basis of their performance in the following:
• Secondary School Certificate
• Higher Secondary Certificate
• Ziauddin University Test
• Interview

III. ADMISSION CRITERIA FOR OVERSEAS STUDENTS
The University has defined the category of Overseas Students as follows [As per PMDC guidelines]:

1) Wards of Pakistanis residing abroad.
2) Students sponsored by their relatives or friends residing abroad.
3) Students who have completed High School from abroad.
4) Change to Local Resident status will not be allowed to those admitted as Overseas Students.

IV. FOR HIGH SCHOOL GRADUATES OF USA/CANADA
• One copy of High School Certificate (Grade 9-12 or 13) attested by the School Principal/Officer.
• BCC equivalence certificate with 60% marks.

• Overseas/Foreign students may apply on the basis of SAT-II score provided they have a score of 550 and above in Biology, Chemistry, Physics/Mathematics and are required to obtain a NOC from Pakistan Medical and Dental Council.

Note: Before submitting applications, applicants must ensure that they have complied with the instructions given with the application form. It remains the responsibility of the applicant to submit application according to the instructions. Students are expected to submit photocopies of documents along with the application and originals for the purpose of verification by the University. If required, university will check the authenticity of the documents submitted with the concerned school, college, board or university.

V. FOR STUDENTS WHO HAVE GRADUATED FROM OVERSEAS PAKISTANI SCHOOLS
Documents to be submitted for admission:
• Duly filled in application form of Ziauddin University along with the required non-refundable fee in US dollars.
• One copy each of mark sheets of Secondary School Certificate (SSC Part I and II).
• Change to Local Resident status will not be allowed to those admitted as Overseas Students.

Successful students selected for MBBS on the basis of their performance in the following:
• Secondary School Certificate
• Higher Secondary Certificate
• Ziauddin University Test
• Interview

VIII. NOTIFICATION OF ADMISSION
The Registrar of the university will notify students about their selection via e-mail. Successful students selected for MBBS will be required to submit the following documents along with the application and other equivalent Certificates or Diplomas, an equivalence to HSC (Pre Medical) will be required as per the guidelines of HEC

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• One copy each of mark sheets of Higher Secondary Certificate (Part I and II). If results of HSC Part II have not been declared by the concerned
DIPLOMA/MASTERS IN HEALTHCARE MANAGEMENT

Health care management describes the leadership and governance in the functioning of hospitals, health networks and healthcare systems. The Master of Healthcare Management is designed to train future healthcare leaders who will lead and guide healthcare organisations to improve healthcare outcomes and experiences.

OBJECTIVES
- To prepare students for leadership and management roles in healthcare organisations
- To develop an understanding of the strategic, legal and regulatory environment
- To develop an understanding of human resources and finance
- To develop an understanding of healthcare delivery systems
- To develop critical and analytical thinking skills
- To enhance performance and outcomes in health care

VISION STATEMENT
Reinvent healthcare through a structured program focusing on leadership, research, education, systems improvement, training and development.

MISSION STATEMENT
To inculcate managerial competencies in healthcare professionals and bring them at par with the changing global scenario.

ELIGIBILITY CRITERIA
- For Graduates in Medicine and Allied (nursing, pharmacy, biotechnology) with at least 55% aggregate marks in 60% of marks
- For Master in Healthcare Management: Graduate in Pharmacy, Biotechnology, or equivalent with a minimum of 50% aggregate marks in 60% of marks
- For Master in Healthcare Management: Graduate in Pharmacy, Biotechnology, or equivalent with a minimum of 50% aggregate marks in 60% of marks
- For Master in Healthcare Management: Graduate in Pharmacy, Biotechnology, or equivalent with a minimum of 50% aggregate marks in 60% of marks

FEE STRUCTURE
Admission Fees: Rs. 20,000/-
Tuition Fees: Rs. 100,000/- per sem
Certificate Charges: Rs. 10,000/-
Note: Any additional taxes imposed by the government will be the liability of the students/patient guardian. The University reserves the right to increase the fees if required according to the recommendation of the Governing Body. Advance fees will be paid semester-wise. All dues need to be cleared within two weeks of commencement of the academic year. 2% surcharge per month will be levied on outstanding fees after the due date.
POSTGRADUATE PROGRAMME IN
BASIC HEALTH SCIENCES M.Phil./Ph.D

The Postgraduate Programme in Basic Health Sciences started at ZU in 1997. This integrated programme is divided into semesters and provides extensive experience and training to the candidates who acquire knowledge, skills, and attitude required for teaching and research. The curriculum is covered through problem-based learning, lectures, seminars and journal club. Systems are placed for evaluation and performance concerning the candidate’s performance and proper guidance for appropriate growth in all areas of training and professional experience.

MASTER OF PHILOSOPHY (M.Phil)

M.Phil candidates in Basic Health Sciences will have to be full-time research students for a minimum period of two academic years. The award of degree shall be based on both course work and thesis. The course work is covered in four semesters followed by one year of research and advanced technique. The programme is recognized by Pakistan Medical and Dental Council (PMDC) and Higher Education Commission (HEC) and follows regulations for registration to research studies leading to the degree of M.Phil in the following subjects:

- Anatomy
- Biochemistry
- Physiology
- Pathology
- Pharmacology

DOCTOR OF PHILOSOPHY (Ph.D)

Ph.D. students in various faculties of Health and Medical Sciences will have to be full-time research students for a minimum period of three academic years. The award of degree shall be both course work and thesis. The programme is recognized by PMDC and HEC and follows regulations for registration to research studies leading to the degree of doctorate in the following subjects of Medical and Health Sciences:

- Biochemistry
- Pathology
- Pharmacology

ADMISSION POLICY

ELIGIBILITY CRITERIA

a) Candidates possessing MBBS/BDS/equivalent degree from an HEC recognized university.

b) M.Phil GAT exam by university

c) NTS/GAT

d) Interviews of candidates shortlisted on the basis of performance in the M.Phil GAT exam by university.

Final selection of candidates will be based on the previous academic record and experience, entrance test and an interview.

FEE STRUCTURE

M.PHIL BHS

Application Fees: Rs. 5,000/-

Admission Fees: Rs. 50,000/-

Tuition Fees: Rs. 65,000/- (Per Sem)

Examination Fees: Rs. 10,000/- (Per Sem Exam)

Thesis Defense Fees: Rs. 50,000/-

PHD

Application Fees: Rs. 5,000/-

Admission Fees: Rs. 200,000/-

Tuition Fees: Rs. 70,000/- (Per Sem)

Examination Fees: Rs. 10,000/- (Per Sem Exam)

Thesis Defense Fees: Rs. 100,000/-

Note: Any additional taxes imposed by the government will be the liability of the student/parent/guardian.

The University reserves the right to increase the fees if required according to the recommendation of the Governing Body.

Advance fees to be paid semester-wise. All dues need to be cleared within two weeks of commencement of the academic year. 2% surcharge per month will be levied on outstanding fees after the due date.

POST GRADUATE PROGRAMME IN
CLINICAL SUBJECTS

Ziauddin University offers MD/MS programme of 4 to 5-year duration in various disciplines. The course is designed to produce skilled practitioners, researchers, teachers with exceptional proficiency in the chosen clinical field. The course comprises core subjects and also focuses on clinical research practices.

The programme is supervised by qualified faculty and has support of allied disciplines. The University hospitals are modern and fully equipped with diagnostic services, inpatient facilities including Intensive and Coronary Care Units and also fully equipped Radiology department with interventional procedures facility. The library is well provided with latest journals and also has multimedia facilities including Internet.

For medical graduates interested in pursuing a research degree, the University offers the following programmes:

DOCTOR OF MEDICINE (MD)

- Cardiology
- Critical Care
- Dermatology
- Emergency Medicine
- Gastroenterology
- Nephrology
- Neurology
- Nuclear Medicine
- Medicine
- Paediatrics
- Psychiatry
- Radiology
- Radiation Oncology
- Urology
- Gynaecology
- Obstetrics
- Ophthalmology
- ENT
- General Surgery
- Orthopaedic Surgery
- Gynaecology and Obstetrics
- Ophthalmology
- Urology

ELIGIBILITY CRITERIA

i. Candidates possessing MBBS or equivalent qualification recognised by PMDC and have done one year of House Job in an institute recognised by PMDC.

ii. Eligible candidates will be required to pass an GAT exam by university and will be interviewed for suitability by the Postgraduate Committee.

ADMISSION POLICY

ELIGIBILITY CRITERIA

a) Candidates possessing MBBS/ BDS or equivalent degree from an HEC recognized university.

b) Candidates must have completed requisite amount of training.

c) Candidates must have obtained minimum CGPA/percentage required by the University.

d) Candidates must have obtained minimum CGPA/percentage required by the University.

e) Candidates must have obtained minimum CGPA/percentage required by the University.

The University reserves the right to increase the fees if required according to the recommendation of the Governing Body.

Advance fees to be paid semester-wise. All dues need to be cleared within two weeks of commencement of the academic year. 2% surcharge per month will be levied on outstanding fees after the due date.
### DIPLOMA PROGRAMMES

The University offers Postgraduate Diplomas in the following disciplines:

- Anaesthesia
- Cardiology
- Dermatology
- Family Medicine
- Medical Oncology
- Paediatric Medicine
- Psychiatry
- Gynaecology and Obstetrics
- Clinical Pathology
- Haematology
- Histopathology
- Medicine
- Microbiology
- Neurology
- Ophthalmology
- Gynaecology and Obstetrics
- Radiology
- Paediatrics
- Surgery
- Nephrology

### POST GRADUATE TRAINING

Ziauddin University is recognised for postgraduate training by the College of Physicians and Surgeons Pakistan for the following programmes:

**MCPS**
- Chemical Pathology
- Ophthalmology
- Paediatrics

**FCPS**
- Anaesthesia
- Chemical Pathology
- ENT
- Family Medicine
- Gastroenterology

**PROFESSOR**
- HIIAB AAMIR MANSOOR M.B. BS, FCPS, FCPS(Hon."

**ASSOCIATE PROFESSOR**
- DR. NADIA NAVEED M.B. BS, FCPS, FCPS(Hon."

**ASSISTANT PROFESSOR**
- SYED IMRAN SHAH M.B. BS, FCPS

**LECTURER**
- DR. ASIF ULLAH M.B. BS

**ANATOMY**

**PROFESSOR**
- NESAR AAMIR M.B. BS, FCPS, FCPS (HON."

**ASSOCIATE PROFESSOR**
- DR. NADIA NAVEED M.B. BS, FCPS, FCPS (HON."

**LECTURER**
- DR. ASIF ULLAH M.B. BS

**BIOCHEMISTRY**

**PROFESSOR**
- DR. AAMIR AAMIR M.B. BS, FCPS, FCPS (HON."

**ASSOCIATE PROFESSOR**
- DR. AAMIR AAMIR M.B. BS, FCPS, FCPS (HON."

**LECTURER**
- DR. AAMIR AAMIR M.B. BS, FCPS, FCPS (HON."

**PHYSIOLOGY**

**PROFESSOR**
- DR. AAMIR AAMIR M.B. BS, FCPS, FCPS (HON."

**ASSOCIATE PROFESSOR**
- DR. AAMIR AAMIR M.B. BS, FCPS, FCPS (HON."

**LECTURER**
- DR. AAMIR AAMIR M.B. BS, FCPS, FCPS (HON."

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### FACULTY MEMBERS

**PRO CHANCELLOR**
- DR. INDA MUQADDAM

**DEANS**
- DEAN, FACULTY OF HEALTH SCIENCES
- PROF. DR. ZAHIDA Memon

**PRINCIPAL, ZIAUDDIN COLLEGE OF MEDICINE**
- PROF. DR. HAIRO Memon

**DIRECTOR, POSTGRADUATE STUDIES (CLINICAL)**
- PROF. DR. EJAZ AHMED YOORA

**ASSOCIATE DIRECTOR ACADEMICS, NORTH SITE (CLINICAL)**
- PROF. DR. IMRAN SHAH

**ASSOCIATE DIRECTOR ACADEMICS, KOLB (CLINICAL)**
- PROF. DR. KHALID MUQADDAM Memon

**ANATOMY**

**PROFESSOR**
- BUSHRA WASIM M.B. BS, FCPS, PHD

**ASSOCIATE PROFESSOR**
- KEVIN BORGER M.B. BS, M.PHIL

**ASSISTANT PROFESSORS**
- SYED MUZAFFAR FAWAAD SHAH M.B. BS, M.PHIL
- MARBEHA SAPIQ M.B. BS, M.PHIL
- MUBRAH LAKHANI M.PHIL

**LECTURER**
- NOOREEN M.B. BS

**BIOCHEMISTRY**

**PROFESSOR**
- SABEELA MANSOOR M.SC, PHD

**ASSOCIATE PROFESSOR**
- SHARMAH MANSOOR M.SC, PHD

**ASSISTANT PROFESSOR**
- SYED YOUSUF AHMED M.B. BS, M.PHIL

**LECTURERS**
- SANA JODHI M.B. BS
- WASFA FAROOIQ M.B. BS
- HANNAH M.B. BS

**PHYSIOLOGY**

**PROFESSOR**
- SYED YOUSUF AHMED M.B. BS, M.PHIL
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<th>Position</th>
<th>Name</th>
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<tr>
<td>Professor</td>
<td>Syed Touif Ahmed</td>
<td>MBBS, M.Phil.</td>
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<tr>
<td>Assistant Professor</td>
<td>Amenah Wasfa Farooq</td>
<td>MBBS</td>
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<td>Shamim Mushtaq</td>
<td>M.Sc, Ph.D.</td>
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<td>Saeeda Baig</td>
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### PULMONOLOGY
**ASSOCIATE PROFESSOR**

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<tbody>
<tr>
<td>JAYAVID ABU BAKR WARIS</td>
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**ASSISTANT PROFESSORS**

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<tr>
<th>Name</th>
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<tbody>
<tr>
<td>ASHOK KUMAR</td>
<td>MBBS, FCPS</td>
</tr>
<tr>
<td>SIDRA KIRAN</td>
<td>MBBS, FCPS</td>
</tr>
<tr>
<td>FATIMA ZAFA</td>
<td>MBBS, FCPS</td>
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<tr>
<td>SAIMA AKHTER</td>
<td>MBBS, FCPS</td>
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### ONCOLOGY/RADIOThERAPY/NUCLEAR MEDICINE
**PROFESSOR**

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<tbody>
<tr>
<td>TARIQ SIDDIQUI</td>
<td>MBBS, FRCP, DAB</td>
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**ASSOCIATE PROFESSORS**

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<tr>
<td>JAYAVI S. S.</td>
<td>MBBS, M.C.PS, MD</td>
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<td>AFTAB AHMED</td>
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<td>SAJID SATTAR</td>
<td>MBBS, MD</td>
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**ASSISTANT PROFESSOR**

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<td>QURAT UL AI BADAR</td>
<td>MBBS, FCPS</td>
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<td>ABDUL QIYUM</td>
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### PSYCHIATRY
**PROFESSORS**

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<td>IMRAN BASHIR CHAUDARY</td>
<td>MBBS, MS, MD</td>
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<tr>
<td>HAIDER ALI NAQVI</td>
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**SENIOR REGISTRAR**

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<tr>
<td>SAMEEH ALEEM</td>
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<tr>
<td>HAREEBI FATIMA</td>
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### DERMATOLOGY
**PROFESSOR**

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<tr>
<td>IJAZ AHMED</td>
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**REGISTRAR**

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<tr>
<td>FATIMA AKHUND</td>
<td>MBBS, DIPLOMA</td>
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### SURGERY & ALLIED
**GENERAL SURGERY**

**PROFESSORS**

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<td>SHAFFIQ UR REHMAN</td>
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<td>MUHAMMAD JAVAID</td>
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<tr>
<td>WAJAHAT HUSSAIN WASTI</td>
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<td>ANIS HUSSAIN JAFFERY</td>
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<td>KHAYALI HAMEED</td>
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**ASSOCIATE PROFESSOR**

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<tbody>
<tr>
<td>ZUBIA NASCOOG</td>
<td>MBBS, FCPS</td>
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**ASSISTANT PROFESSORS**

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<tr>
<td>IMRAN AHMED</td>
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<td>ABUSA DAYANI</td>
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<td>LUBNA NASCOOG VCHRA</td>
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<td>NAEM ANWAR AHMED</td>
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<td>NAZIA</td>
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### UROLOGY
**PROFESSOR**

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<tr>
<td>AHWED FAYAD</td>
<td>MBBS, FCPS</td>
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<tr>
<td>ATER AHMED</td>
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### NEUROSURGERY
**ASSOCIATE PROFESSORS**

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### PAEDS SURGERY
**ASSISTANT PROFESSOR**

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### ANAESTHESIOLOGY
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<td>MOHAMMAD KUMAR</td>
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**SENIOR REGISTRARS**

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<td>S. QASIM</td>
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### OBSTETRICS & Gynaecology
**PROFESSORS**

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<td>UROOJI MAJID</td>
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**SENIOR REGISTRAR**

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**ORTHOPAEDICS**

**PROFESSOR**

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**NEUROSURGERY**

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**ANAESTHESIOLOGY**

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**Paediatrics**

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<td>HEENA RAES</td>
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**Senior Registrar**

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<td>ZAINA TURKU</td>
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<td>SABA SAFDAR</td>
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<td>SADIA RAIZA</td>
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**Ophthalmology**

**Professor**

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**Assistant Professor**

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**Otolaryngology**

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**Radiotherapy**

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My journey here at Ziauddin College of Dentistry has been nothing short of amazing. I knew that I would end up here, as soon as I got out of my admission test. People might think that I am making this up, but this is not a hoax. Starting from the commencement day to the last day of university, I have learned and experienced many things and most of all I’ve grown as a human being. I have gone through different conundrums I must say, but on the flipside, I have had the privilege of meeting great people here, whom I look upon as life-long friends.

A lot of credit goes to the strong and learned faculty who invested their time in me throughout my tenure here at Ziauddin College of Dentistry. They taught me with great zeal and devotion, which made me love my profession even more. ZCD provided a learning environment which enabled me to successfully complete and enjoy my academics.

Working now as a house officer here at ZCD, I feel content and happy with what I have opted to do in the future. This would not have been possible without the constant love and support of my parents and family.

DR. SAAD SHAFAQAT BUKHARI
HOUSE OFFICER
ZIAUDDIN COLLEGE OF DENTISTRY – DENTAL OPD
Ziauddin College of Dentistry offers a four-year undergraduate degree programme leading to Bachelor of Dental Surgery (BDS). Under the cooperative auspices of Ziauddin University.

**COU RSE DETAILS**

BDS programme is divided into four academic years; each year comprises a number of modules related to subject-specific scientific information, in accordance with PMDC recognized curriculum. Ziauddin College of Dentistry has taken the initiative of developing and implementing a horizontally integrated curriculum. The curriculum makes use of latest teaching strategies, which are aimed at providing better quality of education to the students.

- **LEARNING AND TEACHING STRATEGIES**
  
  The college recognizes the challenges met by students once they enter into professional lives. Therefore, students are empowered to adapt to the different ways of absorbing information and take responsibility of their own learning using student-centered learning strategies such as Problem Based Learning (PBL) and Case-Based Lessons (CBL). Community-Oriented Education is also given its due importance in the College of Dentistry.

  Students are actively involved in the learning process by interacting in small groups and by collecting, analyzing and synthesizing information relevant to the problems they are going to face in their professional lives.

- **PROBLEM BASED LEARNING**

  PBL is one of the strategies adopted for learning at the Ziauddin College of Dentistry. This approach is characterized by:
  
  - Opportunities to deal with problems students are going to face in later professional practice.
  - Emphasis on self-motivation and responsibility for learning on their own.
  - Training for learning professional skills, leadership qualities and team work.

  The aim of problem-based learning is to overcome some drawbacks in the traditional methods of instruction; for instance, the passive role of students during lectures irrelevant subject matter in the curriculum and lack of integration between disciplines.

- **LABORATORIES**

  Basic Dental and Medical Science laboratories and Dental OPDs are fully equipped with state-of-the-art equipment, models and other teaching aids ensuring an excellent academic environment for students.

- **STUDY GUIDE BOOK**

  On the commencement day, students are given course/study guides which contain the course objectives and teaching strategies for 1st year of BDS with the planner for the entire academic year. The study guide also identifies all rules and regulations that the student is required to abide by. Likewise, for the subsequent academic years, study guides are supplied to all promoted students on the respective orientation day.

- **CLINICAL TRAINING**

  In addition to the theoretical knowledge, it is important that the students have a significant exposure to the curative, preventive and rehabilitative facets of oral and general health care. The first exposure of the dental students to a clinical environment starts in their 2nd professional year, where students are first trained on phantom heads about the clinical aspects of treatment and soon after it, they are taken for field visits to the community settings as part of their community dentistry training; they are primarily trained for detailed history taking or dental records.

  Third year BDS students receive clinical training for General Medicine, General Surgery and other Clinical subjects of BDS curriculum at the following hospitals:

  - **Dr. Ziauddin Hospital**, Clifton Site – 150-bedded Hospital
  - **KDLB Kemari Site** – 125-bedded Hospital.
  - **Clinical Departments (OPD)** for Ziauddin College of Dentistry, Clifton Site having 75 dental units.

  The students attend OPDs and wards where they obtain first-hand knowledge by dealing with patients under faculty supervision. Apart from clinical learning under the supervision of faculty of Medicine, the students also work in the clinical departments of Periodontology, Oral Medicine, Oral Surgery, Operative Dentistry and Prosthodontics where they gain experience with patients and are trained in different clinical procedures.

In the final year, students spend most of their time in Dental OPDs in the department of Oral Surgery, Prosthodontics, Operative dentistry and Orthodontics. Their training not only includes performing procedures on patients, but also learning crucial skills that help to groom their interpersonal and professional behavior and attitudes.

- **STUDENT ASSESSMENT**

  General Principles:

  It is recognized that the methods of assessment have a strong influence on shaping students’ learning approach. At Ziauddin College of Dentistry, the structure, content, and process of all assessments are designed to reflect and reinforce the specified learning objectives at each stage of the programme. Assessments serve the purpose of providing feedback to the students and the faculty as well as certification.

  Examinations:

  It is conducted by the examination department of Ziauddin University. Continuous Assessment Tests (CAT) are held at the end of each module. At least 80% attendance in each course is mandatory for eligibility to appear in the final examinations. Promotion to next classes is based on passing all the courses scheduled in a year.

  Tools of Assessment:

  - **BCQ and Multiple Choice Questions (BCQs/ MCQs)**
  - Short essay questions (SEQs).
  - Objective Structured Practical/ Clinical Examinations (OSPE/CSE).
  - Viva voce is used to assess knowledge mainly of a higher level.

- **ADMISSION POLICY**

  BDS Admissions to Ziauddin College of Dentistry for a four-year BDS degree course is open to all individuals who meet the selection criteria. All candidates are selected for their academic achievements and potential.

  Students are admitted to the first year of BDS only after fulfilling all admission requirements, including those related to academic requirements and scoring in interview conduct.

  BDS GRADUATES REGISTRATION

  As per Pakistan Medical and Dental Council (PMDC) regulations, registration of BDS graduates is mandatory for dental practice and postgraduate education in Pakistan and abroad.

- **HOUSE-JOB TRAINING**

  Ziauddin University Hospitals offer house jobs to its graduates. A structured training programme has been designed that allows appropriate training for house officers in all domains of dentistry. In addition, house officers have the opportunity to participate in multidisciplinary seminars and academic or clinical conferences. House job training is conducted strictly according to PMDC guidelines.
I. ADMISSION CRITERIA FOR LOCAL STUDENTS
The general criteria for students seeking admission to BDS degree program are as follows:
Minimum 60% marks (un-adjusted) in Pre-Medical group of Higher Secondary Certificate Examinations held by Board of Intermediate Education in Pakistan. Local and overseas students are required to take an entry test (MCQs) and appear for an interview. Proficiency in English language, both in written and verbal expression is required. With GCE Cambridge London, Advanced level (A level), American High School Diploma, and other equivalent Certificates or Diplomas, an equivalence to HSC (Pre-Medical) would be decided as per the guidelines of HEC. Students with American High School Certificate are also required to submit SAT-II with a minimum recommended score of 550 in subjects of Biology, Chemistry and one more Science subject.

DOCUMENTS TO BE SUBMITTED FOR ADMISSION
- Only filled in application form of Ziauddin College of Dentistry
- Photographs (5 passport size).
- One copy each of mark-sheets of Secondary School Certificate (SSC Part I and II).
- One copy of Secondary School Certificate (if available).
- One copy each of mark-sheets of Higher Secondary Certificate (HSC Part I and II Pre-Medical).

If results of HSC Part II are not declared by the concerned Board, photocopy of admit card of HSC Part II examination must be submitted.
For students completing GCE, Cambridge London, one copy each of “O” and “A” Levels transcripts.

II. ADMISSION CRITERIA FOR OVERSEAS STUDENTS
The University has defined the category of Overseas Students as follows:
- I. Wards of Pakistan’s residing abroad.
- II. Students sponsored by their relatives or friends residing abroad.
- III. Students who have graduated from Overseas Pakistan’s Schools.

Note: Change to Local Resident status will not be allowed to those admitted as Overseas Students.

DOCUMENTS TO BE SUBMITTED FOR ADMISSION
- Only filled in application form of Ziauddin University along with the required non-refundable fee in US dollars.
- One copy each of mark-sheets of Secondary School Certificate (SSC Part I and II).
- One copy of Secondary School Certificate (if available).
- One copy each of mark-sheets of Higher Secondary Certificate (HSC Part I and II Pre-Medical).

In the case of the result of HSC Part II is not been declared by the concerned Board, photocopy of admit card of HSC Part II examination must be submitted.

For students completing GCE, Cambridge London, one copy each of “O” and “A” Levels transcripts.

III. FOR HIGH SCHOOL GRADUATES OF USA/ CANADA
- One copy of High School Certificate (Grade 9-12 or 13) attested by the School Principal/Officer
- SAT-I with minimum score of 550 in subjects of Biology, Chemistry and one more Science subject.

Note: Before submitting applications, applicants must ensure that they have complied with the instructions given with the application form. It remains the responsibility of the applicant to submit application according to the instructions. Students are expected to submit photo copies of documents along with the application and originals for the purpose of verification by the university. If required, the university will check the authenticity of the documents submitted with the concerned school, college, board or university.

IV. ADMISSION TEST
The University conducts an Admission Test for all eligible local and overseas candidates. The test consists of Multiple Choice Questions of various types. The test comprises four to five sections designed to assess each applicant’s performance in the areas of:

(a) Biology
(b) Chemistry
(c) Physics
(d) General Knowledge
(e) Aptitude
(f) English

For students completing GCE, Cambridge London, one copy each of “O” and “A” Levels transcripts.

The level of questions in sections of Biology, Physics and Chemistry correspond to that expected at the end of Intermediate Examination or equivalent qualifications e.g. 12th Year etc.

V. INTERVIEW
Short listed applicants will be interviewed to assess their suitability to complete BDS course and pursue a career in health sciences.

VI. NOTIFICATION OF ADMISSION
The Registrar of the university will notify students who are successful in the admission process. Successful applicants are given a deadline by which to accept the offer of admission. Offers not accepted by the given deadline are canceled.

VII. REQUIREMENTS FOR SELECTED STUDENTS
Successful students selected for BDS programme are expected to fulfill the following:

a) Verification of Educational Testimonials
Original transcripts, mark sheets and certificates to be brought for verification by the university.

b) Medical Examination
The undergraduate medical programme is both physically and mentally demanding. Students offered admission are required to undergo a comprehensive medical examination including laboratory investigations and chest X-ray, before they are allowed to join classes.

c) Immunization
Clinical experience carries a small personal risk of infection. In their own interest, and also in the interest of patients and others, students must provide evidence of immunization against the following:
The postgraduate programme for basic dental science subjects started at Ziauddin College of Dentistry in 2011. The programme is recognised by Pakistan Medical and Dental Council and follows regulations for registration to research studies leading to the degree of M.Phil in the subjects of Oral Biology and Oral Pathology.

M.Phil programme of Ziauddin University has been devised with a view to produce self-motivated individuals who wish to further their careers by gaining a higher qualification.

**LEARNING AND TEACHING STRATEGIES**

At Ziauddin University, candidates are given an opportunity to learn the fundamentals of Educational Methodology while participating in conducting an undergraduate programme. This is achieved by means of regular meetings and workshops held by the Department of Education. In addition to this, candidates are encouraged to gain on job experience by giving lectures, taking part in problem-based learning (PBL) sessions, practical and tutorials. Following are the teaching strategies used to improve student learning:

- Seminars, demonstrations and presentations
- Case discussions
- Rotations in Clinical laboratories for relevant training
- Update of knowledge through study of recent journals and internet browsing. Journal clubs and group discussion

**SEMESTER SUMMARY**

CURRICULUM

The curriculum of M.Phil in Basic Dental Sciences is covered in three years. First two years comprise two semesters each year.

**THE POSTGRADUATE PROGRAMME**

- **YEAR ONE**
  - The curriculum content of two semester of year one are arranged in different modules. The student evaluation is carried out at the end of modules and at the end of each semester.

- **YEAR TWO**
  - As recommended by HEC second year of M.Phil is spread over 48 weeks of course/laboratory work and research. In the second year students are required to submit their synopsis in the field of their interest.

- **YEAR THREE**
  - In year three candidates are required to carry out their research work and are exposed to advance techniques and finally present their thesis for defense.

**EVALUATION**

Semester examinations include written as well as Viva Voce / Oral components.

**ADMISSION POLICY**

**ELIGIBILITY CRITERIA**

- Candidates possessing BDS degree from a HEC recognised university
- M.Phil entry test / NTS GAT
- Interviews of candidates short-listed on the basis of performance in the M.Phil entry test.

Final selection of the candidates is based on the previous academic records, experience, entry test and interview.

**CONTACT INFORMATION**

Dr. Sabea Mohaddi, Assistant Professor, (M.Phil Co-ordinator, Ziauddin College of Dentistry)

+92-21-35862937
## FACULTY MEMBERS

### PRINCIPAL
**Prof. Dr. Mervyn Hosein**, FDS RCSE, FDS RCS, FFD RCSI

### DEPARTMENT OF ORAL BIOLOGY
**Professor & HOD**
**Prof. Dr. Mervyn Hosein**, FDS RCSE, FDS RCS, FFD RCSI

**Senior Lecturer**
**Dr. Husnain Masood**, BDS, MSC

**Lecturers**
- **Dr. Isaa Saher**, BDS
- **Dr. Sana Iqram**, BDS
- **Dr. Shafiq Saeed**, BDS
- **Dr. Hira Batool**, BDS

### DEPARTMENT OF SCIENCE OF DENTAL MATERIALS
**Associate Professor & HOD**
**Dr. Shoab Khan**, BDS, MSC

**Assistant Professor**
**Dr. Nazish Fatima**, BDS, MDS

**Lecturers**
- **Dr. Mahmood Moz Khan**, BDS
- **Dr. Waqas Khan Jadoon**, BDS

### DEPARTMENT OF COMMUNITY DENTISTRY
**Assistant Professor & HOD**
**Dr. Sidra Mohiuddin**, BDS, MDS

**Senior Lecturer**
**Dr. Afia**, BDS, MSC

**Lecturers**
- **Dr. Abeena**, BDS
- **Dr. Khizra Rehman**, BDS

### DEPARTMENT OF ORAL PATHOLOGY
**Assistant Professor & HOD**
**Ms. Farida Arif Butt**, BDS, MDS

**Assistant Professor**
**Dr. Sana Mirza**, BDS, M.PHL

**Lecturer**
**Dr. Arsalan Kaffat**, BDS
- **Dr. Isaa Abdi**, BDS
- **Dr. Zaeem Arif Abbasi**, BDS
- **Dr. Sana Fatima**, BDS
- **Dr. Kanwal Iqbal**, BDS

### DEPARTMENT OF ORAL MEDICINE
**Assistant Professor & HOD**
**Dr. Arfa Raj**, BDS, FCPS

### SENIOR REGISTRAR
**Dr. Aman Ali**, BDS, MSc

### LECTURER
**Dr. Naima Nazir**, BDS
- **Dr. Qurra Akrar**, BDS

### DEPARTMENT OF PERIODONTOLOGY
**Assistant Professor & HOD**
**Dr. Zaheer Hussain**, BDS, FCPS

### SENIOR REGISTRAR
**Dr. Zohaib Akrar**, BDS, MSC

### LECTURER
**Dr. AYESHA SAGHIR**, BDS
- **Dr. Tahir Haider**, BDS
- **Dr. AYESHA HANIF**, BDS

### DEPARTMENT OF ORAL SURGERY
**Professor & HOD**
**Dr. Noor Ul Wahab**, BDS, FCPS, FFD RCSI

**Assistant Professor**
**Dr. Atif But**, BDS, MCPS

**Lecturer**
**Dr. Nadeem Chaud**, BDS
- **Dr. HUZAFA SAEED UL KHAIRO**, BDS
- **Dr. TEHREEM KHAN**, BDS
- **Dr. SAEED ULLAH SHAH**, BDS
- **Dr. UZAIR JAMAL**, BDS
- **Dr. Hina Jabeen**, BDS
- **Dr. NAMERA Aqha**, BDS

### DEPARTMENT OF ORTHODONTICS
**Assistant Professor & HOD**
**Dr. Sarwat Memon**, BDS, FCPS

### SENIOR REGISTRAR
**Dr. Farhan Qadeer Shaikh**, BDS

### LECTURER
**Dr. Rabia Rehman**, BDS
- **Dr. Farheen Naz**, BDS
- **Dr. Hasna Mahida**, BDS

### DEPARTMENT OF PROSTHODONTICS
**Associate Professor & HOD**
**Dr. Farooq Rashid**, BDS, MSc

### SENIOR REGISTRAR
**Dr. Jitesh Kumar Kaeela**, BDS, FCPS

### LECTURER
**Dr. Fatima Farhan**, BDS
- **Dr. Syed Shoab Ra**, BDS
- **Dr. Muhtazir Ali Khedi**, BDS
### DEPARTMENT OF OPERATIVE DENTISTRY

**PROFESSOR & HOD**

Dr. Asmat Jamil  
BDS, FCPS

**ASSOCIATE PROFESSOR**

Ms. Tahera Jamil  
BDS, FCPS

**ASSISTANT PROFESSORS**

Dr. Yasir Raza  
BDS, FCPS

**SENIOR REGISTRAR**

Dr. Sadaf Feroz Ali  
BDS, M.Sc

**SENIOR LECTURER**

Dr. Sadaf Bin Irfan  
BDS, M.Sc

**LECTURER**

Dr. Pooja Balani  
BDS  
Dr. Tahera Jamil  
BDS  
Dr. Saima Thareem  
BDS  
Dr. Adha Anwar  
BDS  
Dr. Farah Amin  
BDS  
Dr. Nigam Anwar  
BDS
A dream doesn’t become a reality through magic: it takes sweat, determination and hard work. Being a part of the honorable profession of speech and language therapy has made me experience the reality behind this statement. All my hard work and sweat turned into success on seeing patients with speech, language, hearing or swallowing concerns utter their first words, or being able to eat their desired food. Witnessing those gradual steps they made towards this ultimate goal and their improved quality of life that made them an important part in the society, left truly satisfying. This profession has secured an important place in my heart, for which I feel truly satisfying. This profession plays a tantant part in the society, felt truly satisfying. This profession has made me experience the reality behind this statement.

The college successfully launches a dual degree program of Bachelor’s in Audiology and Speech Language Therapy (BS ASLT) with a post graduate MS Speech Language Pathology (MS SLP) proposed for commencement. As it joyously celebrates its first decade in Ziauddin University, Karachi, the programs ambitiously aim to equip graduates to independently evaluate and treat speech, language, hearing and swallowing disorders, conduct research and contribute to the development of the profession, nationally and in the world at large. It cultivates critical thinking to analyze and act in response to contexts that shape policy and practice in the fields of Audiology and Speech Language Pathology.

College of Speech Language & Hearing Sciences (CSLHS) is our country’s foremost and only institute of its kind, established to equip Pakistani youth with an aspiring new careers in the fields of Audiology and Speech Language Pathology, which have unlimited scope in Pakistan, and across the globe. In addition to this, CSLHS is also offering a diploma course in Childhood Development and psychopathology.

INTRODUCTION
Pakistan with a population of over 195 million individuals has an estimated over 23 million suffering from communication, swallowing and/or hearing disorders. To cater to this huge demand there are less than twenty Speech Language Therapists/Pathologists (SLTs/SLPs) in our metropolis, Karachi, qualified internationally and locally at the CSSH. This was made possible because the Speech and Hearing Association of Pakistan (SHAP) and Ziauddin University (ZU) took collaboratively to establish the ‘College of Speech Language & Hearing Sciences (CSLHS)’ in order to launch our nation’s first 4-year Bachelor’s program in Speech Language Therapy in 2007; within.

Graduates from CSLHS are for the following:

• Babes with feeding and swallowing difficulties
• Cognitive and language delays
• Communication difficulties in children due to:
  • Mild, moderate or severe learning difficulties
  • Language delay
  • Specififc language impairment
• Acquired Hearing loss
• Specific difficulties in producing sounds
  (Articulation & Phonological Disorders)
• Hearing Impairment
• Cleft Plate
• Stammering
• Autism/Social Interaction difficulties (PDD)
• Dyslexia
• Voice disorders
• Selective mutism
• Motor Speech Disorders (dysarthria, dyspraxia)

ADULTS WITH
• Swallowing disorders (dysphagia)
• Language disorders (e.g. aphasia after stroke)
• Voice disorders (e.g. vocal fold nodules, VFPs, hoarseness)
• Cognitive language deficit due to Traumatic Brain Injury
• Cognitive Issues (attention, memory, awareness, Alzheimer’s, degenerative diseases)
• Communication issues after Laryngectomy
• Physical disabilities
• Stammering (dysfluency)
• Motor Speech Disorders (dysarthria, apraxia)
• Right Hemisphere Syndrome
• Mental health issues
• Learning difficulties
• Mental health issues

WHAT’S NEW FOR 2018
After 10 years of commencement the CSLHS upgraded the undergraduate program last year, to a BS in Audiology & Speech Language Therapy College has collaborated with institutes for 3rd and 4th year students for their supervised clinical practicum with:
• The Indus Hospital
• ACEP
• Kinder Academy

This program will provide students with an opportunity to work towards a career as an audiologist and/or speech language therapist.

The field of Audiology deals with the non-medical management of the auditory and balance systems, and focuses on the study of normal and impaired hearing, prevention of hearing loss, identification and assessment of hearing and balance problems and rehabilitation of persons with hearing and balance disorders.

PROGRAMS OFFERED
• A four year BS in Audiology & Speech Language Therapy (BS ASLT)
• A one year Diploma in Childhood Development & Psychopathology (DCDP)
BS AUDIOLOGY & SPEECH - LANGUAGE THERAPY

The fields of Speech – Language Pathology and Audiology remained neglected here, so far. Our students graduating from the college are the torch bearers of these professions in Pakistan and are able to provide their valuable services in a multitude of settings, working collaboratively with ENT specialists, neurologists, pediatricians, psychologists, occupational and physical therapists in hospitals, and rehabilitation units. They can also work at schools or have their private practices.

The CSLHS encourages students to acquire broad concepts, knowledge and skills beyond those gained through their specialist professional study. This is achieved through the requirement that all students complete at least one elective as part of their undergraduate program of study.

The MAKATON Language and Pakistan Sign Language (PSL) have been recommended as suitable electives by the college. Coursework is designed to provide students with essential, foundational Pakistani sign language skills, familiarity with deaf culture and an introduction to the discipline of education. It also equips the students to understand Alternative and Augmentative Communication strategies that are implemented with people who have a marked impediment in expressing themselves verbally. In addition to this Sensory Integration Therapy has also been introduced as an elective.

LEARNING AND TEACHING STRATEGIES

Currently BS - ASLT is structured around a modular curriculum, which is knowledge and skill oriented. The curricula emphasize in – depth training both theoretical and clinical, with clinical training (i.e. observation and performance of clinical work) within CSLHS. In the hospital, in special schools, and in mainstream schools.

Our College has many links within, as well as outside the University, to ensure specialized teaching of all courses that are comparable to those offered worldwide.

SEMESTER SUMMARY

BS ASLT is a 4 year long degree, consequently, having 8 semesters in the degree program. All courses have been grouped into modules, which constitute 42 courses of various duration. The core and associated courses are thoroughly integrat-ed to ensure complete understanding of the field and its various disciplines.

The Modules in are:
- Speech Pathology
- Language Pathology
- Audiology
- Biological and Medical Sciences

ADMISSION POLICY

BS ASLT

Eligibility Criteria:
- Minimum requirement “A” Levels / Intermediate students of all disciplines
- Minimum aggregate marks of 55%
- Fluency in written and spoken English.
- Pre-requisite for students from a non-pre-medical background:
  - Biology in GCE O-Levels or sciences with Biology in Matriculation is mandatory for all candidates
  - A ‘0’ semester shall be held as a foundation course in Biological Sciences for applicants from a non-pre-med background
- Commitment towards a helping profession.

FEE STRUCTURE

Admission Fees: Rs. 50,000/-
Tuition Fees: Rs. 350,000/- (1st Yr)
Examination Fees: Rs. 22,000/- (1st Yr)
Library Fees: Rs. 7,000/-

Note: Any additional taxes imposed by the government will be the liability of the student/parents/guardian.

The University reserves the right to increase the fees if required according to the recommenda-tion of the Governing Body.

Advance fees to be paid semester-wise. All dues need to be cleared within two weeks of com-mencement of the academic year. 2% surcharge per month will be levied on outstanding fees after the due date.
DIPLOMA IN CHILDHOOD DEVELOPMENT AND PSYCHOPATHOLOGY

The CSLHS commenced a Diploma in Childhood Development and Psychopathology (DCDP) in August 2013. The programme caters towards teachers, remedial and early childhood educators, and parents who want to enhance their knowledge in this area of early childhood development.

DCDP follows a modular curriculum, which emphasises in-depth training. 7 modules covering human development from conception through Adolescence and Childhood Disorders are taught. In addition 16 hours of observations (practical component) is mandatory at CSLHS recommended schools. Assistance is provided for the observation placement at the schools.

This program examines the physical, cognitive and social development with diagnostic and intervention techniques for early childhood disorders.

LEARNING AND TEACHING STRATEGIES

The following teaching/learning methods/strategies are used to promote better understanding.
• Lectures
• Case studies
• Small Group discussions
• Observation of children in mainstream and special schools shall be a mandatory component of the course.

SEMESTER SUMMARY

The program comprises two semesters. 1st semester: August – December 2nd semester: January - May
Examinations:
• Quizzes- 20% of final grade
• Assignments- 10% of final grade
• Mid Term Examination- 20% of final grade
• Viva- 10% of final grade
• Final Exam- 40% of final grade

ADMISSION POLICY

Intermediate / A level from all disciplines

FEE STRUCTURE

Tuition Fees: Rs. 96,000/- (1st Yr)
Students Activity: Rs. 2500/-
Library Fee: Rs. 2500/-

Note: Any additional taxes imposed by the government will be the liability of the students/parents/guardian.

This program is framed to endow students with the foundation knowledge needed to work with children and adolescence that are identified with development delays and disorders. The course is structured to provide students with a wide range of knowledge (both theoretical and practical) to improve screening and referral practices: thereby promoting early intervention.

After completion of the diploma, trainees can utilise their expertise in counselling and assessment of children behaviour and help them to cope with their problems and grow into successful, well-adjusted adults.

STUDENT ASSESSMENT

Examinations:
• Quizzes- 20% of final grade
• Assignments- 10% of final grade
• Mid Term Examination- 20% of final grade
• Viva- 10% of final grade
• Final Exam- 40% of final grade

ADMISSION POLICY

Intermediate / A level from all disciplines

FEE STRUCTURE

Tuition Fees: Rs. 96,000/- (1st Yr)
Students Activity: Rs. 2500/-
Library Fee: Rs. 2500/-

Note: Any additional taxes imposed by the government will be the liability of the students/parents/guardian.

This program is framed to endow students with the foundation knowledge needed to work with children and adolescence that are identified with development delays and disorders. The course is structured to provide students with a wide range of knowledge (both theoretical and practical) to improve screening and referral practices: thereby promoting early intervention.

After completion of the diploma, trainees can utilise their expertise in counselling and assessment of children behaviour and help them to cope with their problems and grow into successful, well-adjusted adults.

CAREER OPPORTUNITIES

The diploma programme is framed to endow students with the foundation knowledge needed to work with children and adolescence that are identified with development delays and disorders. The course is structured to provide students with a wide range of knowledge (both theoretical and practical) to improve screening and referral practices: thereby promoting early intervention.

After completion of the diploma, trainees can utilise their expertise in counselling and assessment of children behaviour and help them to cope with their problems and grow into successful, well-adjusted adults.

FACULTY MEMBERS

PRINCIPAL – ASSOCIATE PROFESSOR

MS. AMINA SIDDIQUI

FULL TIME ASSISTANT PROFESSOR

MS. AASIYA SACHWANI

MS. SAMINA MASOOD

PART TIME SENIOR LECTURERS

MS. FATIMA YOUSUF

MS. SONA SHAH

MR. ALI PUNJANI

MS. MISHA IRSHAD

MS. ANUSHAY HUSSAIN

MS. RABBIYAH Binte SOHAIL

PART TIME SENIOR LECTURERS

MS. MUBASH QADIR

MS. RABAB SEHR

MS. HAFSA MUNEER

PART TIME LECTURERS

MS. MAHROOR HASAN

MS. HAIFA MUNEER

FULL TIME LECTURERS

MS. SUNIDAS RAHIM

MS. TALEAH FARKIQ

MS. INSIYA SAIFFUDDIN

MS. ZAINAB SADIQ

VISITING FACULTY

DR. ABBAS HUSSAIN

MS. TEHMINA WAQAS

MS. ARDIYAH REHMAN

DR. AMIR ASHRAF

MR. MUNEEB-UR-REHMAN

DR. NAJMAUL-HAQ

MS. SHAHEENA ALVI

DR. HABIBA HASAN

DR. KHALID MAHIDA

MR. LENNY MASSEY

INTERNATIONAL VISITING FACULTY

MS. MAHVASH AKBAR ALI SAIT

MS. MEGHNA KHANNA

MS. TASNEEM ALI

MS. MISBAH QADEER

MS. RABAB SEHR

MS. FATIMA NAZIR

MS. MAHNAZ MAQBOOL

MS. SABAH HABIB FAZIL

MS. SHAHEENA ALVI

DR. HABIBA HASAN

DR. KHALID MAHIDA

MR. LENNY MASSEY
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COLLEGE OF REHABILITATION SCIENCES

I am Dr. Sadia Shafqat (PT), a contended physical therapist and a lecturer at Ziauddin College of Rehabilitation Sciences (ZCRS), my parent institute. When I ventured the field of physical therapy, preferring it over medicine, thousands of doubts were pouted into my ears about this emerging incendiary discipline, but this couldn’t humble my firm ambitions, as the institution ahead, was ZCRS. After spending 185 days here, I’m incredibly gratified with my decision to opt this profession. My experience here has diversified my perspective towards life. Under the supervision of trained and qualified faculty, who not only edified my academic, clinical and research skills but also embedded my interpersonal skills that groomed me both personally and professionally. Now, I’m building my postgraduate physical therapy career with ZCRS. I must thank all of my mentors for providing me with such an amazing platform and opportunities to prove myself to carry forward the professional legacy as a member of the teaching faculty.

For all new students coming to the university pursuing Physical therapy “Do whatever you need to do to create success on your own terms!”

DR. SADIA SHAFQAT
Lecturer
Ziauddin College of Rehabilitation Sciences

Doctor of physical Therapy is a five-year semester based degree programme.

LEARNING AND TEACHING STRATEGIES

Both national and international qualified teaching faculty is involved to promote better understanding through

- a. Presentation/Assignment/Seminar
- b. Tutorials
- c. Skill based labs
- d. Projects
- e. Clinical Practice (Supervised/Independent)

CLINICAL TRAINING

Students of Ziauddin College of Rehabilitation Sciences have an exclusive advantage to be a part of an organization with large setup of tertiary care hospitals. The clinical training provides a better chance of learning and practicing the skills in the field hence, prepares future therapists to play an important role in the improvement of healthcare quality in society. Students of 3rd, 4th & 5th Professional complete their clinical training in physical therapy at all three sites of Dr. Ziauddin Hospital. In addition, Ziauddin College of Rehabilitation Sciences (ZCRS) started their clinical collaboration with other major healthcare institutions like Dow University of Health Sciences - OJHA campus (DUHS), National Institute of Child Health (NICH), Abbasi Shaheedi Hospitals, National Institute of Child Health (NICH), National Institute of Cardio-Vascular Diseases (NICVD), Sindh Govt. Hospital, Tabba Heart Institute, Al-Umeed Rehabilitation Association (AURA), Khabba Moon Trust, Indus Hospital and Association for Children with Emotional and Learning Problems (ACELP).

SEMESTER SUMMARY

a. Basic Health Sciences
  - Anatomy
  - Physiology
  - Biochemistry
  - Pharmacology
  - Pathology
  - Movement Sciences
  - Biomechanics
  - Physics
  - Manual Techniques

b. Clinical Sciences
  - Medical Condition
  - Surgical Condition
  - Radiology & Imaging
  - Emergency Procedures

c. Physical Rehabilitation Sciences
  - Physical Agents and Electrotherapy
  - Musculo-skeletal Rehabilitation
  - Neurological Rehabilitation
  - Cardiopulmonary Rehabilitation
  - Geriatric Rehabilitation
  - Paediatric Rehabilitation
  - Sports Rehabilitation
  - Women Health

Hospital, Tabba Heart Institute, Al-Umeed Rehabilitation Association (AURA), Khabba Moon Trust, Indus Hospital and Association for Children with Emotional and Learning Problems (ACELP).
ACCELERATED DOCTOR OF PHYSICAL THERAPY

Accelerated Doctor of Physical Therapy is a one-year semester based degree programme for professional physical therapists, keen to upgrade degree for their professional growth.

LEARNING AND TEACHING STRATEGIES
Both national and international qualified teaching faculty promote better understanding through:
- a. Presentation/Assignment/Seminar
- b. Tutorials
- c. Projects
- d. Group or individual presentation/assignments
- e. Student log books or written reports
- f. Human Growth and Development / Behavioural Sciences
- g. Synopsis Submission

SEMESTER SUMMARY
- Semester - I
  - a. Anatomy
  - b. Physiology
  - c. Microbiology
  - d. Introduction to Computers
  - e. Evidence Based Clinical Decision Making
  - f. Human Growth and Development / Behavioural Sciences
  - g. Synopsis Submission
- Semester - II
  - a. Emergency Procedures And Radiology
  - b. Health and wellness / Ergonomics
  - c. Peds / Women Health / Genetic Rehabilitation
  - d. Manual Therapy / Integumentary Rehabilitation
  - e. Genetics
  - f. Teaching Methodologies and Professional Practices
  - g. Research Project

STUDENT ASSESSMENT EXAMINATION POLICY
- a. MCQs
- b. Short answer written examination
- c. Viva
- d. Group or individual presentation/assignments

Note: Any additional taxes imposed by the government will be the liability of the students/parents/guardian.
MS/MPHIL IN PHYSICAL THERAPY

CRS is aiming to create a dynamic research community, enabling physical therapist to fully equip themselves with the skills they require to excel in this field through Higher Degree programmes such as MS/MPHIL. ZCRS is offering MS/MPHIL in Physical Therapy in the following Specialities:
- Musculoskeletal Rehabilitation
- Cardiopulmonary Rehabilitation
- Neuromuscular Rehabilitation
- Exercise Physiology and Sports Sciences
- Women Health and Pediatric Rehabilitation

LEARNING AND TEACHING STRATEGIES
Both national and international qualified teaching faculty promote better understanding through:
- a. Presentation/Assignment/Seminar
- b. Tutorials
- c. Skill based labs
- d. Projects
- e. Clinical Practice (Supervised/Independent)

SEMESTER SUMMARY
- Semester I
  a. Applied Biomechanics
  b. Research, Biostatistics and Critical Appraisal in Physical Therapy
  c. Neuromuscular Rehabilitation
  d. Exercise Physiology
- Semester II
  a. Cardiopulmonary Rehabilitation
  b. Women Health and Paediatric Rehabilitation
  c. Musculoskeletal Rehabilitation
  d. Teaching Professional and Scientific Practice
- Semester III
  a. Sub specialty Courses (3 Options)
- Semester IV
  a. Research Thesis

STUDENT ASSESSMENT EXAMINATION POLICY
- a. MCQs
- b. Viva
- c. Short answer written examination
- d. Directly Observed Clinical Skills
- e. Group or individual presentation/assignments
- f. Seminar Examination

Students are continuously assessed during semester by above methods. This carries 40% weightage for each course.

ADMISSION POLICY
Physical therapy graduates who have completed their 4-year BPT or 5-year of DPT or equivalent from an accredited institution in Pakistan or equivalent to international standards. All candidates are selected on merit fulfilling the following criteria:
- a. DPT/BPT or equivalent
- b. Interviews of shortlisted candidates
- c. GAT General (50% cumulative score)

FEE STRUCTURE
Admission Fees: Rs. 15,000/-
Tuition Fees: Rs. 100,000/- (1st Yr)
Examination Fees: Rs. 19,000/- (1st Yr)
Security Deposit: Rs. 25,000/-
Student Fund: Rs. 3,000/-

Note: Any additional taxes imposed by the government will be the liability of the students/parents/guardian.

CLINICAL TRAINING
Students of Doctor of Occupational Therapy have an exclusive advantage to be a part of an organization with large setup of tertiary care hospitals. The clinical training provides a better chance of learning and practicing the skills in the field hence prepares future therapists to play an important role in the improvement of healthcare quality in society. Students of 3rd, 4th & 5th Professional complete their clinical training in Occupa-
tion Therapy at all three sites of Dr. Ziauddin Hospital and Association for Children with Emotional and Learning Problems (ACELP).

DOCTOR OF OCCUPATIONAL THERAPY

Doctor of Occupational Therapy is a five-year semester based degree program.

LEARNING AND TEACHING STRATEGIES
Both National and International qualified teaching faculty is involved to promote better understanding through:
- a. Presentation/Assignment/Seminar
- b. Tutorials
- c. Skills based labs
- d. Projects
- e. Clinical Practice (Supervised/Independent)

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tion Therapy at all three sites of Dr. Ziauddin Hospital and Association for Children with Emotional and Learning Problems (ACELP).

SEMESTER SUMMARY
- A. BASIC HEALTH SCIENCES:
  - Anatomy
  - Physiology
  - Biochemistry and Genetics
  - Rehabilitation Medicine
  - Pathology
  - Psychology
  - Biomechanics & Ergonomics

- B. CLINICAL SCIENCES:
  - Medical Conditions
  - Surgical Conditions
  - Development & Abnormal Psychology
  - Emergency Procedure

- C. OCCUPATIONAL REHAB SCIENCES:
  - Introduction to Occupational Therapy
  - Occupational Therapy Assessment and Evaluation
  - Occupational Therapy Intervention
  - Applied Pediatrics for Occupational Therapy
  - Applied Geriatric for Occupational Therapy
  - Sensory Integration
  - Occupational Therapy Intervention
  - Sensory Integration

CAREER OPPORTUNITIES
A degree in Physical Therapy offers a challenging, satisfying, and rewarding career to the individual whose interest lies in health services to the public, business, scientific research, university teaching, and hospital practice. Physical therapists can practice independently at private clinics as well as job opportunities are available in tertiary and primary healthcare centres, NGOs, teaching and research institutions both nationally and internationally.
ACCELERATED DOCTOR OF OCCUPATIONAL THERAPY

Accelerated Doctor of Occupational Therapy is a one-year semester-based degree program for Professional Occupational Therapist. Keen to update degree for their professional growth.

LEARNING AND TEACHING STRATEGIES
Both national and international qualified teaching faculty promote better understanding through:

- a. Presentation/Assignment/Seminar
- b. Tutorials
- c. Projects

SEMINER SUMMARY

Semester-I
- Introduction to Computers
- Biomechanics and Ergonomics
- Professional Practices and teaching methodology
- Islamic Studies / Pakistan studies
- Biostatistics
- English

Semester-II
- Health and Wellness in Occupational Therapy
- Applied Pediatrics and Sensory Integration
- Community Based Rehabilitation and Contemporary Issues
- Pathology and Microbiology
- Occupational Therapy in Acute Care
- Assistive Technology and Rehabilitative Environment
- Research

STUDENT ASSESSMENT EXAMINATION POLICY

- a. MCQs
- b. Short answer written examination
- c. Viva
- d. Group or individual presentation/assignments

ACADEMIC AND RESEARCH:

D. SOCIAL SCIENCES AND RESEARCH:
- Sociology
- Professional Practice & Teaching Methodology
- Human Growth & Development
- Research Methodology
- Biostatistics

E. COMPULSORY SUBJECTS:
- Islamiat/Moral Ethics
- Pakistan Studies
- Introduction to Computer
- English

ADMISSION POLICY

Doctor of Occupational Therapy is a five-year semester-based degree program which is open to all science stream (Pre-Medical) students with minimum 50% marks from an accredited institution in Pakistan or equivalent to international standards.

Therefore, candidates with O/A levels must acquire equivalency before taking admission. All candidates are selected on merit, according to the following criteria:

- a. SSC Marks
- b. Entrance Test Marks
- c. HSC Marks
- d. Interview

The course is offered at Clifton Location.

FEE STRUCTURE

Admission Fees: Rs. 20,000/-
Tuition Fees: Rs. 150,000/- (1st Yr)
Examination Fees: Rs. 17,600/- (1st Yr)
Security Deposit: Rs. 25,000/-
Student Fund: Rs. 1,000/-

Note: Any additional taxes imposed by the government will be the liability of the students/parent/guardian.

The University reserves the right to increase the fees if required according to the recommendation of the Governing Body.

Advance fees to be paid semester-wise. All dues need to be cleared within two weeks of commencement of the academic year. 2% surcharge per month will be levied on outstanding fees after the due date.

CAREER OPPORTUNITIES

Doctor of Occupational Therapy Program is popular both nationally and internationally. The incorporation of research and evidence based practice in the curriculum has opened the doors for autonomous practice.

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DIPLOMA IN FITNESS AND TRAINING

The examination shall be comprised of true and false and the practical evaluation of the students by above methods.

ADMISSION POLICY

Any candidate with a minimum of 12 years of education is eligible for admission to the diploma in fitness training program.

LEARNING AND TEACHING STRATEGIES

Both national and international qualified teaching faculty promotes better understanding through:

a. Presentation/Assignment/Seminar
b. Tutorials

DIPLOMA SUMMARY

Anatomy of Sports and Exercise
Sports Nutrition
Ethical and legal aspects of training
Training and Training Method
Fitness and Exercise
Biomechanics and Kinesiology

AWARD OF DIPLOMA

After the completion of the prescribed course by the College candidate will be given diploma certificate in fitness training program by Ziauddin College of Rehabilitation Sciences, Ziauddin University.

FEE STRUCTURE

Admission Fees: Rs 2,000/-
Tuition fees for six months: Rs 36,000/-
Examination and certificate fees: Rs 2,000/-

Note: Any additional taxes imposed by the government will be the liability of the students/parents/guardian.

The University reserves the right to increase the fees if required according to the recommendation of the Governing Body.

Advance fees to be paid semester-wise. All dues need to be cleared within two weeks of commencement of the academic year. 2% surcharge per month will be levied on outstanding fees after the due date.

Diploma in fitness and training program provides guidance of the fundamental basis of training to be prescribed to clients rendering their needs. It helps the fitness trainers to design and prescribe the exercise based fitness management protocol in accordance with the guideline of American
I am Zeeshan Gulfaraz, student of College of Medical Technology Batch-I Department of CVS. I am currently in my second year. The most significant thing that strikes me about CoMT is the way teaching and skills amalgamate to facilitate hands-on training and knowledge. The teaching and training modules have provided me with the array of learning activities to marvel in the field of Medical Technology. The CoMT’s combination of modern and efficient learning has given me top-notch learning environment, but has also provided me a way to excel with both my education and career at the same time. Indeed, it is right to say that the efforts of our valuable staff and faculty throughout the two semesters has not only imparted the course content but also groomed us personally and professionally.

ZEESHAN GULFARAZ  
BS MT BATCH-I  
ZIAUDDIN UNIVERSITY

HISTORY OF MEDICAL TECHNOLOGY
Ziauddin University laid the foundation of College of Medical Technology in 1998, it was then named College of Allied Health Sciences which initially offered Bachelor’s degree in Medical Technology (B.Sc. in MT). Since then, it has successfully enrolled sixteen batches. Recognizing the growing challenges, the college was renamed as Ziauddin College of Medical Technology in 2016, Ziauddin University initiated the BS program in Medical Technology in March 2011, to pace with modern techniques and knowledge Ziauddin will be commencing MS program in Medical Technology in this academic year.

ABOUT MEDICAL TECHNOLOGY
Technology plays an eminent role in today’s world. It is the need of almost every field. Similarly, the Medical Technology Industry has a significant role in the Healthcare sector. It functions on modern electronic medical devices that simplify the diagnosis, analyses and the treatment of diseases. Physicians, surgeons and pathologists rely on the skills and expertise of the medical technologists and therefore they have a responsibility of diagnosing, analyzing and reporting findings to the treating doctors.

MISSION
The College Of Medical Technology, commits to bring forth excellent learning environment to the students in order to attain global competencies in the specialized fields of Medical Technology. The Bachelor of Studies in Medical Technology Programme provides students with scientific and conceptual understanding of the specialized analyses. In addition, it aims to train, up skill and edify medical technologists by empowering their clinical skills and by providing in-depth training on laboratory/diagnostic/clinical procedures and practices and management concerning the patient’s needs and healthcare team.

SCOPE/AIM
The Medical Technology Programme in Ziauddin University strives to produce international standard medical technology professionals by imparting specific knowledge, skill – based training, active clinical practicum in a disciplined environment to instill professional ethics for better global employment opportunities.

PROGRAMMES OFFERED
• BS Medical Technology (04 year)
• MS Medical Technology (1.5 years)
BS MEDICAL TECHNOLOGY
04 YEAR PROGRAM

OVERVIEW OF SPECIALIZE FIELDS IN MEDICAL TECHNOLOGY:

CARDIOVASCULAR SCIENCES
A cardiovascular science is a study of heart and its function, blood vessels in human beings, cardiac disorders and diseases associated with cardiovascular systems. The students are taught and trained in diagnostics, treatment and preventive techniques in Cardiovascular Sciences and its application in clinical and healthcare settings.

Cardiovascular Professionals or Technologists work with cardiac physicians to assist in providing treatment, monitoring and diagnosing patients with Cardiac problems. They can also enrich students with knowledge through their teaching and producing researches. Furthermore, cardiovascular technologists pursue their career as diagnosticians and interventionists of cardiovascular catheterization labs in acute care hospitals, electrophysiolog and echocardiography.

Cardiovascular Technology is a challenging and growing profession. The BS MT in Cardiovascular Sciences program trains students with advance didactic basic and specialized courses and clinical trainings mandatory to marvell at their major studies.

Clinical Training
The study of Cardiovascular Sciences centers on the working of heart, its diagnosis and treatment therefore the CVS technologists are placed at Ziauddin hospital for their clinical practicum, where they utilize their knowledge of cardiovascular principles and functions in the operation of CVS equipments, such as ECG, exercise stress tests and Cardiac Device Follow up, Ambulatory B.P. monitoring and ECG Event/Loop Monitoring. The in-house training enables the trainee to apprehend the operation of machineries used while performing any test. These trainings start after every semester examination and the cycle continues till the final year of the undergraduate programme.

CLINICAL LABORATORY SCIENCES
Clinical Laboratory Science Professionals provides laboratory services required for the diagnosis and treatment of the disease. These Technologists or Scientists, by performing a number of tests, discover the diseases and lend a hand to the physicians to give quick treatment to the patients. Such Critical procedures require strong analytical skills and the ability to work under pressure.

The Programme and courses offered at Clinical Laboratory Sciences put great emphasis on students acquiring these skills by a combination of didactic sessions, group discussion, supervised training, competency assessments and clinical practicum in order to make student adroit at performing tests, analyses and interpretations.

Clinical Laboratory Scientists can set off their careers in medical and healthcare profession. Placements are also offered at scientific equipment companies, chemical and pharmaceutical companies. They can also contribute in educational sector as a faculty member or as a researcher.

Clinical Training
The teaching and learning scheme at Ziauddin University provides its learner in-house training where they can acquire the skills necessary for Clinical Laboratory Scientists. Among these skills are community disease prevention, tooth morphology, dental materials, and oral pathology. During clinical sessions, students will have hands-on technical experience on how to perform root planting, apply fluoride therapy, and develop x-rays at Ziauddin hospital under the supervision of dental physician and senior technologist. These trainings start after every semester examination at Dental Department of Ziauddin University Clifton and the cycles continues till the final year of the undergraduate programme.

DENTAL HYGIENE AND TECHNOLOGY
Dental Hygiene and technology is a multimodal course in the field of dental laboratory where dental hygiene is complemented with dental technology. It is the study of dental diseases, preventive therapy and patient’s counseling. The course is coupled with technical sides of dentistry where technologist makes prostheses, orthodontic and maxillofacial appliances.

Dental technologists work in dental laboratories and create fabricated dental materials, using their artistic skills in fabricating the form and color of an individual’s teeth. Besides dental laboratory, technologists are also welcome in academics to hold a faculty position.

The College of Medical Technology started this programme in the year 2017 with a comprehensive course plan and in-house training of the technologists preparing them to meet the challenges of the developments in the field.

Clinical Training
The teaching and learning scheme at Ziauddin University provides its learner in-house training where they can acquire the skills necessary for Dental technologists. Among these skills are community disease prevention, tooth morphology, dental materials, and oral pathology. During clinical sessions, students will have hands-on technical experience on how to perform root planting, apply fluoride therapy, and develop x-rays at Ziauddin hospital under the supervision of dental physician and senior technologist. These trainings start after every semester examination at Dental Department of Ziauddin University Clifton and the cycles continues till the final year of the undergraduate programme.

RADIOLOGICAL IMAGING
Radiological imaging is the study of techniques and procedure of medical images used for diagnosis of various diseases. Radiologic technologists are specialized at the use of medical imaging such as X-Rays, Magnetic resonance imaging (MRI), Computed tomography (CT) scans, ultrasound, sonography and fluoroscopy. They have an acute understanding of anatomy, positioning, radiation protection and radiographic exposure.

Radiologic technologists are responsible for producing quality diagnostic image. They act as an expert to the physician by providing them proper examination of the disease, interpreting the resulting medical images. The doors of radiological technologists are opened at various technical departments in hospitals followed by physicians, medical laboratories outpatient imaging centers.

Radiological imaging is the demanding profession therefore; the college of Medical Technology has designed the program with intensive coursework along with the technical handling been practiced throughout the 04 year studies.

Clinical Training
The programme offers training to the students at Ziauddin hospital under the guidance of supervisors and experienced technologists who coach students to perform X-rays, MRI, CT scans, mammography, Fluoroscopy, Ultrasound, sonography and fluoroscopy. These training help students to
become expert at their relevant fields before entering into professional life. These trainings start after semester examination and the cycles continue till the final year of the undergraduate programme.

Radiation Therapy

The Radiation Therapist is an allied health professional who works in the field of radiation oncology with radiation oncologists to administer the regular radiation treatment prescribed by the physician under their supervision and operate complex radiation therapy equipment for the diagnosis and treatment of various oncologic diseases.

The scope of practices of radiation therapist includes delivering radiation therapy to the patients, simulators, scoops and examines linear accelerators that treat patients with radiation.

In BS RT programme, students are taught the fundamentals of human anatomy, physiology, pathology, radiology, radiation safety and techniques, radiation oncology in addition to management electives to enable student to become competent and skilled radiation therapist.

Clinical Training

The BS RT programme offered at Ziauddin university gives students practical skills by providing in-house training after every semester to build a strong foundation of the course. During their clinical practicum, students are taught to assist oncology patients by delivering chemotherapy to them. Moreover, the training also involves the working on radiation equipments and producing a diagnosis. These trainings start after every semester examination and the cycles continues till the final year of the undergraduate programme.

Teaching and Learning Strategies

Ziauddin University, College of Medical Technology offers ample facilities to its students. The central location of college of Medical Technology in North Nazimabad makes it convenient, easy to approach and accessible for the students primarily.

The College of Medical Technology is located in state of the art building that is modern designed with huge lobbies, lecture halls and laboratories. The classrooms of College are spacious, well-furnished, equipped with multimedia facility which enhance teaching-learning process in effective way. It is complemented with an air-conditioned environment that helps students to endure the harsh climatic conditions of the city. There is a seminar room available primarily to organize workshops and seminars that can accommodate more than 150 learners.

Training labs are termed as skill labs which are replica of hospital’s clinical labs. Skills laboratories are well-equipped consisting of hi-tech instruments to provide hands on training to students prior to dealing with patients.

Ziauddin is following the trail of modernization and since the concept of library has changed; it has evolved to a LEARNING RESOURCE CENTER which is a comprehensive learning area awarded for the concept of libraries and plastic museums. Therefore, Ziauddin has developed the latest Learning Resource Center which is a combination of library with wide range of books and plastic museum. It comprises of 4D models along with computing facilities that provides access to e-books, e-journals and academic articles. In addition to this students can also benefit from the main library located at Ziauddin Hospital, North Nazimabad for utilizing extensive learning opportunities after university hours.

The College of Medical Technology is well equipped with state-of-the-art industry standard equipment to enable the students to be able to work under pressure.

Attendance in classes is mandatory.

The College of Medical Technology is still oriented program and therefore, has made it mandatory for the students to do practicums as a part of their course work.

To achieve the prestige of Medical Technology as a privilege, past students on rotations within concerned departments of Ziaud- din Hospitals during semester and after successful completion of semester and they don’t have to wander to other hospitals to seek internships.

FACILITIES

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Critical procedures require strong analytical skills to give quick treatment to the patients. Such procedures are conducted under the supervision of professionals who works in the field of radiation oncology. Students are taught how to work under pressure.

Clinical trainings mandatory to marvel at their didactic basic and specialized courses and work in the field of radiation oncology, in addition to management electives to enable student to become competent and skilled radiation therapist.

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Teaching and Learning Strategies

Ziauddin University, College of Medical Technology promotes culturally inclusive, impelling and productive learning environment giving specific consideration to student’s own psychological and sensory status and recognizing, nurturing and developing one’s strength to foster the learning process and positive interaction among the peers, groups and stimulates independence to meet the challenges of the real world. Subse- quently, explicit and structured teaching is prac- ticed and supported by audio and visual materials installed in each classroom. Contemporary practices such as blended learning, flipped class- room, and facilitation are provided meeting the course requirement of the programme. The brightest feature of college of Medical Technology is that Academic block and Clinical training site are under the same roof which reinforces learning by implementing teaching examples in real time cases. Finally, at the end of each semes- ter, students are posted in Ziauddin Hospital to implement their knowledge and upgrade their skills.

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survey recently conducted suggests that the demand of medical technologists is projected to grow 21% from 2014-2024 much faster than the average of all the occupations due to the greater need of diagnosis and of medical conditions through medical procedures.

Medical Technologist have the opportunity to join:
- Hospitals and clinical laboratory positions
- National and multinational diagnostic companies
- Pharmaceutical firms
- Management positions
- Academic positions
- Public health agencies
- NGOs

Ziauddin University college of Medical Technology introduces MS in Medical Technology to provide advanced and specialized training and transferrable skills in different disciplines of Medical Technology to enhance the career prospects in hospitals, clinical laboratories and in research studies. This program develops students’ interpersonal skills, the ability to think critically and to make objective judgments in addition to student’s scientific knowledge.

Following are the Postgraduates courses of Medical Technology:
1. Blood Banking
2. Chemical Pathology and Diagnostic Endocrinology
3. Clinical Microbiology
4. Hematology

Overview of Postgraduate Programmes in Medical Technology:

1. Blood Banking
   Technical progression in the field of Medical Technology elevates the exigency of technologists and thus requires expertise in the relevant disciplines. Blood bank technologists require advanced skills to demonstrate superior level technical competency at regular and specialized testing, transfusion services, transfusion therapy and blood collection concerning the safety of the received blood. These technologists are responsible for demonstrating strong problem solving skills to produce accurate diagnostics. In addition to this, they are expected to exhibit managerial, administrative, quality assurance, and computer skills. Such skills are developed through extensive interdisciplinary education and therefore College of Medical Technology has designed its postgraduate programmes aiming to develop the competence in all technical areas of blood banking and transfusion.

2. Chemical Pathology and Diagnostic Endocrinology
   Chemical Pathology and Diagnostic Endocrinology conjunct as a whole that specializes technologists to investigate, analyze, and manage the biomedical and metabolic disorders accompanied by techniques, management and administration of a laboratory. Medical technologists in this discipline provide advice to the healthcare professionals on appropriate test selection for patients with a variety of metabolic disturbances and provide clinical interpretations of biomedical, endocrine and metabolic test results.

3. Clinical Microbiology
   The Postgraduate study at the College of Medical Technology in clinical microbiology focuses on the examination of the infectious agent of the disease, which evades patient’s immune system. This is operated on complex instruments and automated equipments by technologists. Furthermore, technologist in Clinical Microbiology reports the findings to the physician. Technologists of this discipline can work with public and private healthcare teams, in pharmaceutical companies, hospital laboratories, and pharmaceutical and diagnostic instrument companies.

4. Hematology
   Hematologist technologist is mainly concerned with the study of blood at cellular level. They are specialized at detecting and determining the cause of blood diseases while utilizing modernistic instruments. Hematology technologists can contribute their expertise in researches as well as in academic settings. They can also work in blood banks, medical laboratories, in private clinics and hold managerial responsibilities in laboratories.

Eligibility Requirements for Admission: (MS-MT)
- Candidates applying for admission to the MS Medical Technology shall be a graduate (16 years of education) with minimum Higher Education Commission (HEC) requirements i.e. CGPA of 2.5 or higher in BSc/MSc semester system. 40% marks in annual system. However equivalence committee will be authorized to equate CGPA and credit hours which will vary from case to case.
- BS Medical Technology.
- BS/MSc biological sciences with two years of relevant clinical laboratory working experience (experience certificate is required).
- Entry Test and Interview will be conducted by Ziauddin University.
- For enrollment in MS it is mandatory for all the

PROPOSED PROGRAM FOR ACADEMIC YEAR 2018-19

MASTER OF STUDIES IN MEDICAL TECHNOLOGY (MS-MT)

Ziauddin University
candidates to clear NTS. GAT (General) with 50% marks within the first academic provisional enrollment.
• Admission in 1st year of MS will be granted provisionally and will be confirmed only after passing the above stated test and score within one academic year of admission.
Note: Students of Ziauddin University, BS – MT Clinical Laboratory Sciences will have to seek a equivalence certificate from equivalence committee of Ziauddin University.

ASSessment Policies and Procedure
Enrolled candidates are assessed and examined for theory and skills with periodic examinations. Continuous assessment is practiced incorporating multiple summative and formative assessments to measure the extent to which students have achieved the desired outcome. It includes mid-terms, projects, portfolios, clinical practicum and competencies.

Eligibility for Final Semester Examinations
Attendance requirement for eligibility to appear in semester examination is 75%.
MINIMUM PASS LEVEL FOR ALL SUBJECTS: 61% (Theory & Practical)*
*Mid semester and Semester examinations.
Mid semester examination result will carry 30% weightage in the final semester examination results for theoretical courses only. All examinations will be conducted by Department of Examinations, Ziauddin University.

ACADEMIC Pattern and Duration
• Semester System (16 Weeks followed by 2 weeks of examination)
• All MS are offered as regular and flexible Programme as per departmental accommodating capabilities.
NOTE: It will be offered as per institutional policy and availability of seats.

Mandatory Bridge Course
• Those students who have completed their required education from any university other than Ziauddin University’s Medical Technology Clinical Laboratory Sciences Programme will have to complete the prescribed Bridge courses.
• Bridge courses will be of relevant MS subject specialization.
• Duration of Bridge Course will be 4 weeks of study period followed by examination.
• Bridge Courses will have to be completed and passed before getting admission to Second/Next offered semester of MS.

Duration of Programme
Minimum duration to complete MS is 18 Months and 30 credit hours for all offered Programmes (coursework based).
Maximum Duration to complete MS is seven years from date of enrolment (coursework based).

Fee Structure
Admission Fees: Rs. 20,000/-
Tuition Fees: Rs. 120,000/- (1st YR)
Examination Fees: Rs. 14,000/- (1st YR)
Bridge Course: Rs. 10,000/-

Note: Any additional taxes imposed by the government will be the liability of the students/parents/guardian.
The University reserves the right to increase the fees if required according to the recommendation of the Governing Body.
Advance fees to be paid semester-wise. All dues need to be cleared within two weeks of commencement of the academic year. 2% surcharge per month will be levied on outstanding fees after the due date.

CONTACT INFORMATION
For further details visit our website: acmt.zu.edu.pk
Phone no. 021-3664237-9 Ext: 406, 389
Fax no.021-36645670

LOCATE US
College of Medical Technology
Ziauddin University
3rd Floor E 40/1, Wahid Colony
Block B North Nazimabad
Near Karachi.

EXAMINATION FEES:  Rs. 14,000/- (1st YR)
Tuition Fees: Rs. 120,000/- (1st YR)
Examination Fees: Rs. 14,000/- (1st YR)
Bridge Course: Rs. 10,000/-
## FACULTY MEMBERS

### ASSISTANT DEAN
**Dr. Afir Hussain**
PhD, Microbiology

### ADVISOR TO THE PRINCIPAL
**Dr. Saba Jamil**
MBBS, Diplomat American Board of Anatomic and Clinical Pathology
Diplomat American Board of Hematology

### PRINCIPAL
**Dr. Ayesha Iqbal**
MBBS, MCPs (Clinical Pathology)

### ASSISTANT PROFESSORS
- **Ms. Huma Rashid**
MSc, Clinical Microbiology
BSc, Laboratory Medicine
BSc. Biological Sciences
- **Mr. Musharraf Imran**
BSc, MSc, MPhil, PhD Fellow Medical Technology
- **Ms. Mehwish Zeeshan**
BSc, MSc. MPhil, Medical Technology
- **Dr. Rizwan Khan**
PhD Biochemistry
- **Dr. Rehan Ahmed Siddiqui**
PhD Molecular Medicine

### LECTURER
- **Ms. Qamarunnisa**
MSc. (Clinical Microbiology)
- **Ms. Tajalilie Danish**
BSc, Microbiology
- **Ms. Wajha Shujaat**
BSc Medical Technology (Blood Banking)
- **Ms. Yusra Anees**
M.A English Linguistics

### INSTRUCTOR
- **Ms. Marium Syed**
BS Medical Technology (Chemical Pathology)
- **Ms. Mahapara**
BS Medical Technology (Cardiac Perfusion)
- **Ms. Hafsa**
BS Dental Hygiene

### CLINICAL FACULTY
- **Clinical Laboratory**
  - **Dr. Afzal Kaif Ali Jeelani**
MBBS, DCP, FCPS, HOD Clinical Laboratory
  - **Dr. Fouzia Lateef**
MBBS, MCPS, FCPS, Histopathology
  - **Dr. Fayaz Iqbal Afridi**
MBBS, FCPS, Microbiology
  - **Dr. Azeem Ali**
MBBS, FCPS, Histopathology
  - **Dr. Julzurnin Imran**
MBBS, FCPS, Hematology
  - **Dr. Liaqat Ali**
MBBS, FCPS, Chemical Pathology
  - **Dr. Anwa Qamar**
MBBS, FCPS Resident
  - **Dr. Nayab Aziz**
MBBS, FCPS Resident
  - **Dr. Saba Raza**
MBBS, FCPS Resident
  - **Dr. Ayesha Habib**
MBBS, FCPS Resident
  - **Mr. Anto Ahmad Ui Haq**
MSc, MPhil Biochemistry Principal Lab Officer
  - **Mr. Mujtaba Zeb**
MSc, MPhil Fellow Clinical Microbiology
  - **Mr. Inayat Ullah**
MSc, Blood Banking QA Officer Blood Bank
  - **Ms. Madiha Khan**
MSc Blood Banking, Supervisor Blood Bank

### Cardiovascular Sciences
**Dr. Naeem Haider**
MBBS, MD Cardiology, Diploma in Cardiology (ICCP, RSIC)
Consultant Cardiologist

**Dr. Syed Shujaat Hussain**
MBBS, Diplomat American Board of Cardiology, Consultant Cardiologist

**Dr. Wajid Younus Baig**
MBBS, MD Cardiology

### Neurosciences
**Dr. Bashir A. Soomro**
MBBS, FCPS Neurology, Consultant Neurologist

**Dr. Sohail Ahmad Soomro**
MBBS, FCPS, Consultant Neurologist

**Dr. Nadeem A. Memon**
MBBS, FCPS, Consultant Neurologist

**Dr. Muhammad Sarwar**
MBBS, FCPS Resident

**Dr. Shazia Khan**
MBBS, FCPS, Consultant Neurologist

**Dr. Alijra Ali**
MBBS, FCPS Resident

**Mr. Muhammad Sarwar**
Neuropsychologist

### Radiation Therapy
**Dr. Ali Jawad**
MBBS, Resident Radiation Therapy

**Mr. Aziz Ahmed Siddiqui**
MSc, Physics, Diploma in Radiation Safety from Saclay, France
Chief Radiation Physicist

**Mr. Arshad Mehmod**
MSc, Physics, Radiation Physicist

### Nuclear Medicine
**Dr. Jawed Afridi**
M.O.D and Consultant Nuclear Medicine

**Dr. Saifee Sattar**
MBBS, MD Nuclear Medicine, Consultant Nuclear Medicine

**Dr. Asad Jilal**
MBBS, Resident Nuclear Medicine

**Dr. Hira Bibi**
MBBS, Resident Nuclear Medicine

### Radiological Imaging
**Dr. Sarfraz Shalme**
MBBS, MCPS, FCPS, EDI.R, Interventional Radiology Fellow

**Dr. M. Ali**
MBBS, EDI.R, HOD Radiology

**Dr. Nadeem Akhtar**
MBBS, FCPS, Consultant Radiologist

**Dr. M. Farhain Ahmed**
MBBS, FCPS, Consulting Radiologist

**Dr. Hind Pathan**
MBBS, Chief Resident Radiology
I am Mr. Muhammad Hasnain Shaikh, a Position holder from Ziauddin College of Nursing. College Faculty members taught me to think critically while providing patient care and time management. It is Ziauddin College of Nursing who has given me the confidence to enlighten the way for my future endeavors. The field of nursing is very challenging but I can honestly say that it enhanced my knowledge and skills which helped me to provide quality care to patients.

MUHAMMAD HASNAIN SHAIKH
BScN STUDENT (BATCH-V)
COLLEGE OF NURSING
ZIAUDDIN UNIVERSITY

- Utilizing effective critical thinking and problem solving skills in caring for the individuals, families and communities
- Integrate scholarly skills and the use of scientific methods in critiquing, and applying existing nursing theories and research findings in selected practice settings
- Applying effective verbal and written communications in interpersonal and professional interactions with peers, patients, families and other professionals
- Demonstrating a high degree of competence in the use of available resources to support the identified needs of individuals, families and communities
- Developing leadership skills to promote development of the nursing profession

EDUCATIONAL OBJECTIVES
- Maintain high quality programs of learning that prepare graduates to meet the health care needs of individuals, families and the communities we serve
- Provide effective and efficient support for learning and teaching
- Maintain effective systems of ongoing assessment and evaluation to assure high quality programs
- Engage in the discovery of knowledge through scholarly work, teaching and service to add to the body of nursing science
- Provide an effective infrastructure for research to enhance faculty and student development
- Demonstrate effective critical thinking skills in providing care to individuals, families and communities by using evidence based literature and problem solving skills

PROGRAMMES OFFERED
- Bachelor of Science in Nursing (4 Years)
- Post RN BSN (2 Years)
- Master of Science in Nursing (2 Years)
- Diploma in Nurse Midwifery (1 Year)
- Diploma in General Nursing (3 Years)
- Diploma in Nurse Midwifery (1 Year)
- Diploma in General Nursing (3 Years)
- Bachelor of Science in Nursing (4 Years)
The Master of Science in Nursing (MSN) program prepares nurse experts in advanced practice and/or management for leadership in professional nursing practice and patient-centered healthcare delivery. The program broadens the perspective of students by requiring them to take innovative interdisciplinary approaches to resolve healthcare problems.

**LEARNING AND TEACHING STRATEGIES**
Various learning and teaching strategies are used at College of Nursing which includes: interactive lectures, small group discussion, review of articles, presentation (individual/pair), role-play, field visit, problem solving exercises, self study, brainstorming, problem based tutorials, computer based language learning and clinical integration.

**SEMESTER SUMMARY**

**Semester I**
The first semester of MSN includes courses such as: Nursing Leadership & Management, Scholarly Writing, Introduction to Biostatistics and Thesis.

The course of Nursing Theory provides an opportunity to be able to link theory and practice in nursing. The students also integrate the ethical-concepts, theories, and values applied in ethical decision-making that are related to a variety of ethical dilemmas in Nursing Practice and Health care.

**Semester II**
The second semester of MSN includes courses such as: Ethical and Theoretical Concepts in Nursing, Nursing Research, Educational Design, proposal writing and thesis.

The course of Nursing Theory provides an opportunity to be able to link theory and practice in nursing. The Education Design course enables the students to discuss concepts of curriculum development, implementation and evaluation. In addition, students explore forces and issues that influence the implementation of curriculum.

Proposal Writing provides an opportunity for students to synthesize the knowledge gained in previous course work and to demonstrate an ongoing critical review of the literature as they develop their thesis research proposal.

**Semester III**
The third semester includes the courses such as: Nursing Leadership & Management, Scholarly Writing, Introduction to Biostatistics and Thesis.

As the terminal objective of MSN program is to prepare leaders therefore Nursing Leadership & Management course enable the students to examine organizational leadership and management theories and related research as applied to the healthcare system. Scholarly Writing courses provides an opportunity for students to synthesize the knowledge gained in previous course work and to demonstrate an ongoing critical review of the literature as they develop their thesis research proposal.

**Semester IV**
In fourth semester of MSN program students will be studying Public Health. The students also work to finalize their thesis work and defend thesis and will undergo senior electives.

**ASSESSMENT OF DEGREE PROGRAMS**

**a. Continuous Assessment**
- Continuous assessment is conducted by the College of Nursing for regular and repeating student.
- Continuous assessment weighs 50% towards the overall marking whereas the other 50% is evaluated by the University Examination Department.

**b. University Examination**
- It is conducted by Ziauddin University Examination Department for all degree programs.
- The degree programs University Examination will be held at the end of each semester of the academic year.
- Examination dates for all degree programs will be announced by the Examination Department.

**ADMISSION POLICY**

**A) ADMISSION TEST**
Ziauddin University College of Nursing conducts an Admission Test through University Examination Department for all eligible applicants. The test consists of Multiple Choice Questions and short question of various types.

**b) INTERVIEW**
Applicant will be interviewed to assess their suitability to complete concern course and pursue a career in nursing services. Interview will be held at the Ziauddin College of Nursing.

**c) APPLICANT SELECTION**
Applicant selection in Ziauddin College of Nursing is strictly based on merit and applicants are considered on the basis of admission test and interview results.

**ELIGIBILITY CRITERIA**
Based on Pakistani Nursing Council

**AGE:** No age limit
**GENDER:** Both

**FEE STRUCTURE**

- Admission Fees: Rs. 66,000/-
- Tuition Fees: Rs. 64,000/- (1st Yr)
- Examination Fees: Rs. 8,800/- (1st Yr)
- Security Deposit: Rs. 5,000/-
- Student Fund: Rs. 5,000/-
- Laboratory Expense: Rs. 1,000/-
- Enrolment Fee: Rs. 2,000/-
- Academic Transport: Rs. 4,000/-

**Note:** Any additional taxes imposed by the government will be the liability of the students/parents/guardian.

The University reserves the right to increase the fees if required according to the recommendation of the Governing Body.

Advance fees to be paid semester-wise. All dues need to be cleared within two weeks of commencement of the academic year. 2% surcharge per month will be levied on outstanding fees after the due date.

**REQUIRED DOCUMENTS**

- Copy of Matriculation/Intermediate certificate.
- Diploma in General Nursing/Post RN BSN/BScN Cumulative Transcript & degree. Diploma in Midwifery or other Specialization certificate, domicile, applicant CNIC, Parent/Guardian CNIC, Valid PNC license, Expe.-reience letters, 2
The Master of Science in Nursing (MSN) program prepares nurse experts in advanced practice and/or management for leadership in professional nursing. The students also learn skills of advanced history taking and physical examination. They also integrate the ethical, legal, and psychosocial aspects of nursing practice and patient-centered health care systems. Scholarly Writing courses prepare the learners for challenges in teaching learning and its responses in various health care settings. It also prepares the learners for writing a life-long process. Pathophysiology and Pharmacology - I provides students with the opportunities to build necessary for a basic understanding of the biochemical’s and biophysical processes in the human body. Health assessment developing the skills and knowledge needed to assess the health status of individuals of varying ages and conditions. These skills can be applied to identify health problems and designing nursing care in a variety of clinical settings. The course emphasizes history taking and physical examination skills applied to the nursing practice. Teaching and Learning Principles and Practices provide an opportunity for analyzing individual learning process and promote strategies to facilitate the learning of self and others. Moreover, it will prepare the learners for challenges in teaching learning and its responses in various health care settings. The test comprises of three sections designed to measure knowledge in the following subjects question of various types. The following subjects required for the post RN BSN program:

This is a two years degree program. The goal is to prepare nurses to gain in-depth knowledge, skills and develop professional independence, self-directedness and critical thinking. This program is offered as evening program.

**ELECTIVES**

Semester - IV

Evidence Based Clinical Practicum. This course will provide in-depth knowledge understanding and clinical application of evidence based clinical practice to enhance the advance practice of professional nursing in a variety of health care settings. It will enable the learners to respond to the needs of society by helping persons, families and communities through therapeutic nursing care. The learners use clinical judgement to assist the client in achieving optimal health and adapting to alter state of health. Students are required to select a practicum experience related to their specified area of interest i.e. Clinical Education, Clinical Management, Health Care System and Occupational Health Nursing. This course will promote leadership qualities such as critical thinking, problem solving and decision making capabilities among students. Analyze the trends and issues that influence the development of philosophy in their clinical practice setting. Apply knowledge of relevant theories and skills in specific areas of nursing practice. Relate knowledge of the role and responsibilities of the preceptor in her/his clinical practice setting. Participate collaboratively as a peer with other health professionals during Evidence Based Clinical Practicum. Evidence Based Clinical Practicum. Demonstrate an in-depth approach to solving problems during the practicum experience. Demonstrate self-directed learning abilities to complete the practicum.

**LEARNING AND TEACHING STRATEGIES**

Various learning and teaching strategies are used at College of Nursing which includes: interactive lectures, small group discussion, review of articles, presentation (individual/pair), role-play, field visit, problem solving exercises, self study, brain storming problems based tutorials, computer based language learning and clinical integration.

**SEMESTER SUMMARY**

Semester - I

Life sciences enable the learners to apply learnt principles and concepts, from the various sciences necessary for a basic understanding of the biochemical’s and biophysical processes in the human body. Health assessment developing the skills and knowledge needed to assess the basic health status of individuals of varying ages and conditions. These skills can be applied to identify health problems and designing nursing care in a variety of health care settings. The course emphasizes history taking and physical examination skills applied to the nursing practice. Teaching and Learning Principles and Practices provide an opportunity for analyzing individual learning process and promote strategies to facilitate the learning of self and others. Moreover, it will prepare the learners for challenges in teaching learning and its responses in various health care settings. The test comprises of three sections designed to measure knowledge in the following subjects question of various types. The following subjects required for the post RN BSN program:

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Semester - IV

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**LEARNING AND TEACHING STRATEGIES**

Various learning and teaching strategies are used at College of Nursing which includes: interactive lectures, small group discussion, review of articles, presentation (individual/pair), role-play, field visit, problem solving exercises, self study, brain storming problems based tutorials, computer based language learning and clinical integration.

**SEMESTER SUMMARY**

Semester - I

Life sciences enable the learners to apply learnt
needs, and implementing preventive and therapeu-
tic nursing interventions based on physiological,
psychosocial, cultural and spiritual concepts. In
addition, the course also incorporates concepts and
knowledge of anatomy and physiology, pathophysiol-
gy, and pharmacology. Introduction to Biostatistics
will provide an introduction to sound basic statistical
principles and their applications in various aspects of
scientific studies. In addition, rules governing use of
descriptive and inferential statistics will also be
explored.

Introduction to nursing theories and models foun-
dational understanding of nursing as a discipline and
profession. Students will be introduced to several
different theoretical frameworks in nursing and to the
contributions of selected nursing theo-
rists. Pathophysiology and Pharmacology II provides
students with the opportunities to build on,
the concepts and knowledge about the
altered Physiological mechanisms with integra-
tion of pharmacology including their impact on
the functional status of the body. It also deals with
the responses of the body that participate in
management of disease. The usefulness of this
course will increase nursing knowledge, skills and
attitudes towards pharmaco-dynamics and phar-
maco-kinetics in relation to disease process which
impact on cellular function of the body. Academ-
ic Language and Literacy skills addressed include:
listening comprehension, fluency development,
oral intelligibility, reading, grammar, writing, and
vocabulary development. Academic study skills
addressed include: fast taking and note taking
skills, academic vocabulary usage, critical read-
ning and writing, comprehending academic
lectures, research and library skills, formal compo-
sition forms and development, including research
papers.

Semester – III
Advanced concepts in Nursing III will enable
the learners to identify the needs and provide holistic
care by utilizing evidence based practices to
people with mental health challenges. Moreover,
the learner will be able to provide special atten-
tion to family and their care taker who suffering
from various mental health conditions, dysfunc-
tional or mental disorders. Enhances the knowl-
edge and skills required for advance nursing
practice in community setting. It will help the
learner to develop his/her ability to practice with
communities by applying planning cycle with the
integration of major concepts of community as a
partner, health promotion across life span, and
epidemiology and research. The course will also
address global health, demography, and devel-
opmental issues in relation to the diverse roles of
nurses in community health. Introduction to
Research is designed to stimulate scholarly inquiry
about the research. It focuses on developing
understanding of scientific approach and meth-
ods of the research process and critical appraisal
of existing nursing and related health literature.
The contents will enable nurses to critique qualita-
tive/quantitative research and utilize research
findings to promote relationship of research to
practice, education and administration. Introduc-
tion to Epidemiology is design to provide the
knowledge and skill to the learners of using epide-
imological concepts in assessing the contributing
factors, diagnosing the problems, planning
intervention and evaluating the results in the
health care system. In addition the learners will be
able to make inferences on the impact popula-
tion demographics on social and health status in
Pakistan. Learners will also be able to correlate
epidemiological research findings to nursing
practice. Professional Development & Leadership
in Healthcare course provides the learners
concepts and principles of leadership and man-
gement and professional development in a
health care system that fosters positive, creative
and caring environment. It prepares nurses for
assuming the role of leaders along with their
effective application in a context that are consid-
ered important for professional nursing practices
in contemporary world. The English for Professional
Communication provides students the opportuni-
ty to refine written and verbal communication skills
that employers find important but are difficult to
master in one’s second or third language. In the
courses, students learn basic concepts of gram-
matical, and social practice as they focus on the
most practical skills for workplace and public commu-
nication.

Semester – IV
Evidence Based Clinical Practicum (Elective).This
course will provide in-depth knowledge; under-
estanding and clinical application of evidence
based clinical practice to enhance the advance
practice of professional nursing in a variety of
health care settings. It will enable the learners
to respond to the needs of society by helping per-
families, and communities through therapeutic
nursing care. The learners use clinical judgment
to assist the client in achieving optimal health and
adaptation to alter state of health. Students are
required to select a practicum experience relat-
ted to their specified area of interest i.e. Clinical
Education, Clinical Management, Health Care
Systems and Occupational Health Nursing. This
course will promote leadership qualities such as
critical thinking, collaborative and decision
making capabilities among students. Scholarly
writing is a type of writing intended for an
academic audience based on a thoroughly
researched subject that the writer has informed or
expert knowledge about. Although scholarly
writing is typically aimed at a specific audience
educated in a specific field, Scholarly writing
communicates original thought, whether through
primary research or synthesis, that presents a
unique perspective on previous research. In a
scholarly work, the student is expected to have
insight on the issue at hand, but those insights
must be grounded in research, critical reading,
and analysis rather than personal experience or
opinion.

ASSESSMENT OF DEGREE

PROGRAMS

a. Continuous Assessment
• Continuous Assessment is conducted by the
College of Nursing for regular and repeating
student
• Continuous assessment weighs 50% towards the
overall marking whereas the other 50% is evaluat-
ed by the University Examination Department
• Some courses will be evaluated 100% internally
by College of Nursing (those mentioned in the
concern program curriculum)
• All clinical must be passed at a satisfactory level
according to the components stated in the
clinical evaluation form, unsatisfactory perfor-
mance can lead to learning contract
• Student has to pass both the components
(Theory and Clinical) before appearing into final
university exam

b. University Examination
• It is conducted by Ziauddin University Examina-
tion Department for all degree programs
• The degree programs University Examination will
be held at the end of each semester of the
academic year
• Examination dates for all degree programs will
be announced by the Examination Department
with the consultation of the Dean/Principal
College of Nursing

ADMISSION POLICY

a) ADMISSION TEST
Ziauddin University College of Nursing conducts
an Admission Test through University Examination
Department for all eligible applicants. The test
consists of Multiple Choice Questions and short
questions of various types. The following subjects
are assessed in the admission test:

Post RN BScN Program:
The test comprises of three sections designed to
assess each applicant’s performance in the areas of

(a) Nursing Knowledge

(b) Mathematics & Logical Reasoning

(c) English

b) INTERVIEW
Applicant will be interviewed to assess their suita-
bility to complete concern course and pursue a
career in nursing services. Interview will be held at
the Ziauddin College of Nursing.
This is a four years degree program, leading to practice as a Registered Nurse. The degree program fosters integrated nursing knowledge, skills and professional attitude. Upon completion of the program the graduate is prepared to be a safe clinical nurse, who will be able to provide comprehensive care at primary, secondary and tertiary levels within hospitals and community settings.

Moreover, the BScN students will be registered with Pakistan Nursing Council after completing one year internship as per given PNC internship policy and must pass the PNC Licensure examination.

ELECTIVES

Course Description
This course is designed to provide an opportunity to BScN learners to enhance their nursing knowledge and skills in selected hospital clinical settings. Emphasis will be on integration and application of knowledge and skills from previous course work in order to demonstrate the ability to design provide manage and coordinate care in accordance with updated clinical guidance.

Course Objectives
On completion of this course students will be able to
1. Coordinate and manage nursing care across the continuum to meet the health need of individuals, families, and population.
2. Demonstrate critical thinking in professional practice.
3. Assume leadership role within the scope of nursing practice.
4. Formulate individual goals for professional development.

LEARNING AND TEACHING STRATEGIES

Various learning and teaching strategies are used at College of Nursing which includes: Interactive lectures, small group discussion, review of articles, presentation (individual/pair), role-play, field visit, problem solving exercises, self study, brain storming, problem based tutorials, computer based language learning and clinical integration.

SEMESTER SUMMARY

Semester I

The first semester of BScN YR I includes courses such as: Fundamentals of Nursing-I, Microbiology, Anatomy & Physiology I, and Biochemistry for Nurses, English-I, and Computer Skill.

The microbiology course is designed to furnish the learners with the knowledge of basic concepts and scientific principles of Microbiology. It facilitates the learners to learn the application of principles of Microbiology in hospital and community environment.

The anatomy physiology course introduces learners to the structures and functions of the human body. Knowledge of Anatomy & Physiology will provide a better understanding and integration to theoretical & clinical practice in nursing care situation.

The fundamental of nursing course introduces the student to nursing as a professional discipline. The concept of a professional nurse is addressed through a brief overview of nursing historical development, definitions of nursing, nursing education, the practice, roles of the nurse and nurse’s accountability.

Semester II

The Second semester of BScN YR I includes courses such as: Fundamental of Nursing II, Anatomy & Physiology II, Community Health Nursing II, English II, Islamiat, Applied Nutrition & Pakistan Studies.

The PON II course introduces learners to different concepts of nursing practice with emphasis on identifying the patient needs, developing communication skills and use of the nursing process. Learners will gain knowledge related to the theoretical concepts, values, and norms of the profession, while learning skills for providing basic nursing care to patients in hospital settings.

The Community Health Nursing course will introduce students to the basic concepts of Community Health Nursing with the emphasis on Primary Health Care and Environmental Effects on Health. This course introduces students to the factors influencing health of individual, family and community. Students will also develop knowledge about Pakistan’s Health Care System, components of health education, community services and organizations through field visits.

Semester III

The first semester of BScN II includes courses such as: Adult Health Nursing II, Health Assessment-I,

BACHELOR OF SCIENCE IN NURSING

This is a four years degree program, leading to practice as a Registered Nurse. The degree program fosters integrated nursing knowledge, skills and professional attitude. Upon completion of the program the graduate is prepared to be a safe clinical nurse, who will be able to provide comprehensive care at primary, secondary and tertiary levels within hospitals and community settings.

Moreover, the BScN students will be registered with Pakistan Nursing Council after completing one year internship as per given PNC internship policy and must pass the PNC Licensure examination.

ELECTIVES

Course Description
This course is designed to provide an opportunity to BScN learners to enhance their nursing knowledge and skills in selected hospital clinical settings. Emphasis will be on integration and application of knowledge and skills from previous course work in order to demonstrate the ability to design provide manage and coordinate care in accordance with updated clinical guidance.

Course Objectives
On completion of this course students will be able to
1. Coordinate and manage nursing care across the continuum to meet the health need of individuals, families, and population.
2. Demonstrate critical thinking in professional practice.
3. Assume leadership role within the scope of nursing practice.
4. Formulate individual goals for professional development.

LEARNING AND TEACHING STRATEGIES

Various learning and teaching strategies are used at College of Nursing which includes: Interactive lectures, small group discussion, review of articles, presentation (individual/pair), role-play, field visit, problem solving exercises, self study, brain storming, problem based tutorials, computer based language learning and clinical integration.

SEMESTER SUMMARY

Semester I

The first semester of BScN YR I includes courses such as: Fundamentals of Nursing-I, Microbiology, Anatomy & Physiology I, and Biochemistry for Nurses, English-I, and Computer Skill.

The microbiology course is designed to furnish the learners with the knowledge of basic concepts and scientific principles of Microbiology. It facilitates the learners to learn the application of principles of Microbiology in hospital and community environment.

The anatomy physiology course introduces learners to the structures and functions of the human body. Knowledge of Anatomy & Physiology will provide a better understanding and integration to theoretical & clinical practice in nursing care situation.

The fundamental of nursing course introduces the student to nursing as a professional discipline. The concept of a professional nurse is addressed through a brief overview of nursing historical development, definitions of nursing, nursing education, the practice, roles of the nurse and nurse’s accountability.

Semester II

The Second semester of BScN YR I includes courses such as: Fundamental of Nursing II, Anatomy & Physiology II, Community Health Nursing II, English II, Islamiat, Applied Nutrition & Pakistan Studies.

The PON II course introduces learners to different concepts of nursing practice with emphasis on identifying the patient needs, developing communication skills and use of the nursing process. Learners will gain knowledge related to the theoretical concepts, values, and norms of the profession, while learning skills for providing basic nursing care to patients in hospital settings.

The Community Health Nursing course will introduce students to the basic concepts of Community Health Nursing with the emphasis on Primary Health Care and Environmental Effects on Health. This course introduces students to the factors influencing health of individual, family and community. Students will also develop knowledge about Pakistan’s Health Care System, components of health education, community services and organizations through field visits.

Semester III

The first semester of BScN II includes courses such as: Adult Health Nursing II, Health Assessment-I,
Pathophysiology - I, Pharmacology - I, Mathemat-
ics, and English.

The Adult Health Nursing aims to furnish students with the knowledge and skills to care for adult patients admitted to the hospital with various disease conditions. They also study Pathophysiology as a subject to build on the concepts and knowledge about the altered physiological mechanisms and their impact on the functional status of the body across the lifespan. In first semester an introduction to the content and skills needed to assess the basic health status of individuals of varying ages is taught to students with the demonstration and hands on practice.

Pathophysiology gives the opportunities to students to build on the concepts and knowledge about the altered Physiological mechanisms and their impact on the functional status of the body. It also deals with the responses of the body that participate in manifestation of disease. The usefulness of knowledge, skills and attitudes of the nurse in the patient solving problem in the hospital, school, community or home is the determining factor in the selection and integration of the content. Pharmacology content and skills needed to assess the basic health status of individuals of varying ages. These skills can be applied to nursing care in a wide variety of clinical settings. This course emphasizes history taking and physical examination skills. English designed to help increase their reading speed. It aims at helping achieve a higher reading rate which will also help them in other subjects in addition to English and also learnt dimensions of mathematics and help student to apply knowledge in nursing field.

Semester IV

The second semester of BSN includes courses such as: Adult Health Nursing, Pathophysiology, Health Assessment II, Nursing Research, Ethics, Pediatrics Health Assessment, and Community Health Nursing. This semester introduces the basic concepts of adult learning in order to better understand one’s individual learning process and strategies to facilitate the learning of others in various health care settings. Community Health Nursing focuses on the role of community health nurses in providing family centered care and basic concepts of Reproductive Health for male and female. The English course helps students to improve their own writing process, and find ways to improve their summary writing techniques.

Semester V

The first semester of BSN III includes courses such as: Pediatrics Health Nursing, Community Health Nursing, Learning Principles & Practices, and Research. The focus of Pediatrics Health Nursing course is to develop knowledge, skills and attitudes in the care of children in primary, secondary and tertiary settings. Students apply a variety of concepts related to Growth and Development and its deviation in all aspects of children’s health. The Teaching/Learning Principles & Practices introduces the basic concepts of adult learning in order to better understand one’s individual learning process and strategies to facilitate the learning of others in various health care settings. Community Health Nursing focuses on the role of community health nurses in providing family centered care and basic concepts of Reproductive Health for male and female. The English course helps students to improve their own writing process, and find ways to improve their summary writing techniques.

Semester VI

The second semester of BSN III includes courses such as: Mental Health Nursing, Introduction to Biostatistics, Behavioral Psychology, Community Health Nursing, and English. The Mental Health Nursing course familiarizes the students to the concepts of mental health and mental illness, the various concepts of psychiatric nursing and its development in general and in Pakistan in particular. The introduction to Biostatistics course provides the learners prerequisite knowledge to basic statistical principles and their application to qualitative and quantitative research studies in health sciences. The Behavioral Psychology course will help the learner understand human behavior and provide insight into one’s personal attitudes, responses to everyday situation and interactions. The Epidemiology course is designed to teach the skills needed for the learner to use epidemiological concepts in assessing public health problems, diagnosing the problems, planning intervention and evaluating the results in the community. The Culture, Health and Society guide students to the human interaction and its impact on individual and group behavior. It also introduces learners to the field of socio-cultural anthropology. It focuses on the exploration of values, beliefs and practices related to health and illness in general and among specific groups of people. The English course is designed to enhance the scientific information of the learners. In addition the course will also improve the scholarly and technical information of the learners.

Semester VII

In the first semester of BSN IV students critically analyze, the assessment data of the patient’s health status, the knowledge of pathophysiological, social, emotional and spiritual aspects of care. They relate normal and altered physiological concepts to patient care in critical care and emergency setting and learn different machinery related to intensive care unit e.g. ventilator setting and IABP.

Furtheremore, they investigate the research process as a systematic approach to thought and the generation of nursing knowledge and understand the processes of Evidence based health care.

B. University Examination

• It is conducted by Ziauddin University Examination Department for all degree programs
• The degree programs conducted under Ziauddin University Examination will be held at the end of each semester of the academic year
• Examination dates for all degree programs will be announced by the Examination Department with the consultation of the Dean/Principal of the College

ADMISSION POLICY

a) ADMISSION TEST

Ziauddin University College of Nursing conducts an Admission Test through University Examination Department for all eligible applicants. The test consists of four sections designed to assess each applicant’s performance in the areas of:

(a) English
(b) Science
(c) General Knowledge
(d) Mathematics

b) INTERVIEW

Application will be interviewed to assess their suitability to complete concern course and pursue a career in nursing services. Interview will be held at the Ziauddin College of Nursing.

c) APPLICANT SELECTION

Applicant selection in Ziauddin College of Nursing.
is strictly based on merit and applicants are considered on the basis of admission test and interview results.

**ELIGIBILITY CRITERIA**
Fsc (Pre-Medical group) with minimum 50% score Age: 18-30 Years Gender: Both

**FEE STRUCTURE**
Admission Fees: Rs. 50,000/-
Tuition Fees: Rs. 121,000/- (1st Y)
Examination Fee: Rs. 3,400/- (1st Y)
Security Deposit: Rs. 5,000/-
Student Fund: Rs. 4,000/-
Laboratory Expense: Rs. 3,000/-
Enrolment Fee: Rs. 2,000/-
Academic Transport: Rs. 4,000/-

Note: Any additional taxes imposed by the government will be the liability of the students/parents/guardian.

The University reserves the right to increase the fees if required according to the recommendation of the Governing Body.

Advance fees to be paid semester-wise. All dues need to be cleared within two weeks of commencement of the academic year. 2% surcharge per month will be levied on outstanding fees after the due date.

**REQUIRED DOCUMENT**
- Copy of Matriculation/Intermediate marksheet & certificate verified by concerned board (pre-medical medical), domicile, applicant CMC, Parent/Guardian CMC, 3 reference letters, and 16 recent passport size photographs.

**CAREER OPPORTUNITIES**
The opportunities in nurse careers are endless. After several years of experience, the nurse is eligible to pursue specialization of choice. This can often mean more opportunities in the nursing profession, including leadership, education or management.

This is a three years program, leading to practice as a Registered Nurse. The goal is to prepare the students to deliver safe and competent nursing care to individuals, families and communities.

**LEARNING AND TEACHING STRATEGIES**
Various learning and teaching strategies are used at College of Nursing which includes: Interactive-lectures, small group discussion, review of articles, presentation (individual/pair), role play, field visit, problem solving exercises, self study, brain storming, problem based tutorials, computer based language learning and clinical integration.

**SEMESTER SUMMARY**

Semester I
In the Semester I, Nursing students were taught Fundamental of Nursing, Anatomy & Physiology-I, Community Health Nursing II, English, and Pharmacology. Computer & Microbiology.

All these are basic course in RN year which focuses & provides introduction in fundamental aspects of nursing. Emphasis is placed on basic human needs, the nursing process, alterations in health status and basic nursing procedure used in the care of hospitalized patients.

Anatomy & Physiology focus of study is on the structure & function of the major body systems.

The course introduces students to the concept of health and wellness and their relation to the Community Health Nursing. Health for all, elements of primary health care, factors influencing the health of individuals and populations, purposes and strategies of health education and community services/organizations.

English is the course taught in the basic nursing curriculum in order to have proper documentation and proper communication.

Pharmacology emphasis on proper dosage calculation about drugs overall along with nursing care besides side effects, efficacy and contraindication. It will also help the nursing students to educate the patient and their family accordingly.

A computer study is very necessary for nursing students for presentation as a necessary technology to deliver their learning and for understanding too.

This program is assessed by Sindh Nurses Examination Department for all degree programs.

The course introduces students to the concept of health and wellness and their relation to the Community Health Nursing. Health for all, elements of primary health care, factors influencing the health of individuals and populations, purposes and strategies of health education and community services/organizations.

English is the course taught in the basic nursing curriculum in order to have proper documentation and proper communication.

Pharmacology emphasis on proper dosage calculation about drugs overall along with nursing care besides side effects, efficacy and contraindication. It will also help the nursing students to educate the patient and their family accordingly.

A computer study is very necessary for nursing students for presentation as a necessary technology to deliver their learning and for understanding too.

This is an introductory course of Microbiology the content focuses on the characteristics of living matter, the various disease-causing organisms and their effect on individual and the environment.

Semester II
In continuation of Fundamental of Nursing II, Anatomy & Physiology II, Community Health Nursing II, English, students are also taught History and Ethics of Nursing along with first Aid, Nutrition, Chemistry and Physics.

History and Ethics of Nursing introduces the students to the history and development of nursing in Pakistan and the world.

Nutrition is focused on the basic nutritional needs for growth and development throughout the life cycle which address the basic nutrients, nutrient value of foods, dietary needs of different age groups, specific diets and deficiency diseases.

Chemistry and its application is introduce in nursing care which is a basic introduction in this course.

Physics provides a basic knowledge applied to nursing care which includes weight and measures, body mechanics, management of medical devices and machines, heat production and energy.

Semester III
In the first semester of RN year I, students are taught about the community based nursing by this they come to know the common problems that already exist in the community. They also learn different tools that are used to prioritize those problems so that they can provide holistic care to individuals, families and communities at community level. And also they learn about pediatric Nursing in which they learn disease under 13 year children, they also study psychology nursing to understand the role of nurse while assessing the clients needs according to their disease process and also assess their mental level and behavior and attitude.

Semester IV
In the second semester of RN year I, students are taught about the different medical diagnosis including whole disease process so that they can relate it with normal physiology. Moreover they also learn about the nursing diagnosis according...
to the clinical manifestation to provide holistic care to their patient. In this semester, there is an emphasis on advance nursing procedures so that student can able to perform their clinical on critical area effectively. Furthermore, students are taught about the leadership in nursing to enhance theirs knowledge and also teach Islamic subject in which they learn basics rukan of Islam.

Semester V
In the first semester of RN year III, students are taught about the community based nursing by this they come to know the common problems that already exist in the community. They also learn different tools that are used to prioritize those problems so that they can provide holistic care to individuals, families and communities at community level. Besides this, they also study psychiatric nursing to understand the role of nurse while assessing the client’s needs according to their disease process.

Semester VI
In the second semester of RN year III, students are taught about the different medical diagnosis including whole disease process so that they can relate it with normal physiology. Moreover they also learn about the nursing diagnosis according to the clinical manifestation to provide holistic care to their patient. In this semester, there is an emphasis on advance nursing procedures so that student can able to perform their clinical on critical area effectively. Furthermore, students are taught about the leadership and management in nursing to enhance theirs leadership skill to become future leader.

b) INTERVIEW
Applicant will be interviewed to assess their suitability to complete concern course and pursue a career in nursing services. Interview will be held at the Ziauddin College of Nursing.

c) APPLICANT SELECTION
Applicant selection in Ziauddin College of Nursing is strictly based on merit and applicants are considered on the basis of admission test and interview results.

ELIGIBILITY CRITERIA
Applicant must meet one of the following academic level:
FSc (Pre-Medical group) with minimum 50% score or Matric (Biology Science group) with minimum 55% score
Age: 15-30 Years
Gender: Female

FEE STRUCTURE
Admission Fees: Rs. 33,000/-
Tuition Fees: Rs. 71,500/- (1st yr)
Security Deposit: Rs. 5,000/-
Student Fund: Rs. 4,000/-
Academic Transport: Rs. 4,000/-

Note: Any additional taxes imposed by the government will be the liability of the students/parents/guardian.

The University reserves the right to increase the fees if required according to the recommendation of the Governing Body.

Advance fees to be paid semester-wise. All dues need to be cleared within two weeks of commencement of the academic year. 2% surcharge per month will be levied on outstanding fees after the due date.

REQUENT DOCUMENTS
• 1 Copy of Intermediate/ Matriculation marksheet/certificate verified by concern board (Biology Science Group)
• domicile, applicant CNIC (Above 18) / B. Form (Under 18) and Parents/Guardian CNIC
• 15 recent passport size photographs
• 3 reference letters

CAREER OPPORTUNITIES
The opportunities in nurse careers are endless. After several years of experience, the nurse is eligible to pursue specialization of choice. This can often mean more opportunities in the nursing profession, including leadership, education or management.
DIPLOMA IN NURSE MIDWIFERY

This is a One Year Program, Leading to a Diploma in Nurse Midwifery. For those Applicants Who Have Passed RN Examination (Post Basic), The Goal of This Program is To Reduce the High Maternal Mortality Rates in the Country.

**LEARNING AND TEACHING Strategies**
Various Learning and Teaching Strategies are used at College Of Nursing Which Includes: Interactive Lectures, Small Group Discussion, Review Of Articles, Presentation (Individual/Pair), Role-play, Field Visit, Problem Solving Exercises, Self Study, Brain Storming, Problem Based Tutorials, computer Based Language Learning And Clinical Integration.

**SEMESTER SUMMARY**
Semester I & II
In the First And Second Semester, The Nurse Midwives Study in Such Subjects Like Obstetrics And Obstetrical Nursing, Each Student Must Do At Least 20 Antenatal Examinations in Clinics/homes, 5 Vaginal Examinations Conduct, 25 Deliveries Including 5 in The Districts, Nurse 20 Lying In Women And Their Babies, Each Of Which Must Be Entered In Their Case Books Which Must Be Properly Maintained In The Prescribed Form. The Student Must Also Witness At Least 25 Cases Normal/Abnormal.

**ASSESSMENT OF DIPLOMA Program**
- This Program is Assessed By sindh Nurses Examination Board
- Examination Policy Of Ziauddin College Of Nursing is Applicable for All Diploma Programs

**ELIGIBILITY CRITERIA**
Diploma In General Nursing
Gender: Female

**Fee Structure**
- Admission Fee: Rs.16,500/-
- Tuition Fees: Rs.88,000/- (1st Yr)
- Security Deposit: Rs.2,500/-
- Student Fund: Rs.1,000/-
- Academic Transport: Rs.2,000/-

**Note:** Any additional taxes imposed by the government will be the liability of the students/parents/guardian.

The University reserves the right to increase the fees if required according to the recommendation of the Governing Body.

Advance fees to be paid semester-wise. All dues need to be cleared within two weeks of the due date.

**REQUIRED DOCUMENTS**
- 1 Copy of Matriculation Marksheet/Certificate verified by Concern Board
- 1 Copy Of Diploma In Nursing, Domicile, Applicant CNIC (Above 18) / B. Form (Under 18) And Parents/guardian CNIC
- 15 Recent Passport Size Photographs

**CAREER OPPORTUNITIES**
The Opportunities in Nurse Careers Are Endless. After Several Years Of Experience, The Nurse is Eligible To Pursue Specialization Of Choice. This Can Often Mean More Opportunities in The Nursing Profession, Including Leadership, Education Or Management.

**FACULTY MEMBERS**

**PRINCIPAL & ASSOCIATE PROFESSOR**
- MS. ALIA NAZIE
- MAESPIN (UK), POST RN BSN, RN, RM

**ASSISTANT PROFESSOR**
- MS. BADIL DAS
- MSCN, POST RN BSCN, RN, RM

**SENIOR LECTURERS**
- MS. STELLA NAHIEED
- POST RN BSCN, RN, RM, DWA, DTA
- MS. DONIA JOSEPH
- MSCN, POST RN BSCN, RN, RM
- MS. BELLA RICHARD
- MSCN (IN PROGRESS), POST RN BSCN, RN, RM
- MS. NADIA ALI
- POST RN BSCN, RN, RM
- MS. AMBER HUSSAIN
- MSCN, POST RN BSN, RN
- MS. MEHWHISH AMIN NATHAN
- MBA HEALTH AND HOSPITAL MANAGEMENT (IN PROGRESS), BSCN
- MS. DAI D JAFFER
- MSCN (IN PROGRESS), BSCN
- MS. ASHRAF VALLUMANI
- POST RN BSCN, RN, RM, MA ECONOMICS
- MS. SABINA ASLAN
- POST RN BSCN, RN, BA
- MS. SHABNAM
- MSCN (IN PROGRESS), POST RN BSN, DIPLOMA IN CARDIOLOGY, RN, NURSE AID
- MS. MEHTAB MIEBOBU (NON-NURSING)
- BSC IN MICROBIOLOGY (GOLD MEDALIST), BSC IN MICROBIOLOGY
- MS. JBRAN KHAN (NON-NURSING)
- MA IN ENGLISH LINGUISTICS, MA IN ENGLISH LITERATURE
- MS. KOHAR NAZLI (NON-NURSING)
- MA IN ENGLISH LINGUISTICS (IN PROGRESS), MA IN ENGLISH LITERATURE, MSC GEOGRAPHY (GOLD MEDALIST)
- MS. SAVNA SARDUDDIN JIWANI (PART TIME)
- POST RN BSCN, RN, RM
- MR. ABDUL REHMAN
- POST RN BSCN, BSCN IN DIPLOMA IN CARDIOLOGY, RN
- MS. ASHRAF VALMANI
- POST RN BSCN, RN, BA
- MS. NASIRA LATIF (PART TIME)
- POST RN BSCN, RN, RM
- DR. HUMERA NOOR (PART TIME)
- MPH, POST RN BSCN, RN

**LECTURERS**
- MS. JAHANGIR MAIHOOD
- POST RN BSCN, RN
- MR. IBRAHID SIDDIGI
- BS IN COMPUTER SCIENCE
- MS. IRIANA IQBAL KHAN
- MASTERS OF MICROBIOLOGY
- MS. SAMINA KNOWSHER
- POST RN BSCN, RN

**SKILL LAB COORDINATOR**
- MS. KISHWER NAZLI
- MAEHPIN (UK), POST RN BSN, RN, RM

**SKILL LAB NURSES**
- MS. BADIL DAS
- MSCN, POST RN BSCN, RN, RM
- MS. DONIA JOSEPH
- MSCN, POST RN BSCN, RN, RM
- MS. BELLA RICHARD
- MSCN (IN PROGRESS), POST RN BSCN, RN, RM
Studying Biomedical Engineering at Ziauddin University has widened my perspective and has given me an idea of the importance of Biomedical Engineering to maintain the healthy society. Being part of it, I have witnessed its transformation from College of Biomedical Engineering to Faculty of Engineering Science and Technology. This really widened its horizons and introduced a series of multiple events and inter university competitions. The combination of dynamic teaching methodology and lab work helped me to obtain a better understanding of the concepts. The labs at Department of Biomedical Engineering are equipped with the state of the art facilities to aid in the learning process. The dedicated faculty with expertise in their field really inspiring and it motivates me for the research-based lifelong learning.

At Ziauddin University I interacted with many diverse people and made many friends. The pleasant and collaborative environment of the university helped me to appreciate the differences and taught me to convert differences into strengths. Here I learned how to create opportunities and bring positive change in the society.

SEEMEEN NADIR SHAH
BE BIOMEDICAL ENGINEERING

VISION
“Exploring unchartered waters of knowledge to make the world a better place to live.”

MISSION
“Ziauddin University Faculty of Engineering Science & Technology (ZUFEST) aims to create robust and well-liked academic units that produce efficient & agile engineers with improved research base to facilitate the development of an ambitious blueprint for continued growth in knowledge-based economy.”

INTRODUCTION
ZU has been running College of Biomedical Engineering for last nine years. After sustaining and consolidating an engineering unit now it’s time to grow and expand. As per the directives of worthy Chancellor the Engineering Science and Technology knowledge areas are being integrated as Ziauddin University Faculty of Engineering Science & Technology (ZUFEST) to offer Bachelor, Master & PhD degree programs with full consent and consultation of concerned regulators.

ZUFEST aims to develop as a “contributing community” than just an academic unit. We are focused to provide an environment where faculty, students and staff should be motivated ambitious and willing workers. The bonding should be such that future Alumni themselves take lead to help their alma mater grow & develop.

Leadership of ZU is mindful of the fact that inner strength of any organization lies with its Human Resource. Therefore, Capacity building of existing manpower and attracting new highly qualified workforce is prime focus of ZUFEST. The highly qualified faculty is on board to support the Vision & Mission of the organization. ZUFEST is striving hard to be known for its different pedagogic approach equipped with interactive learning tools & case study based teaching and a research base where research is conducted for a bigger purpose than just a publication. ZUFEST targets to emerge as one of the most responsive research unit to upcoming opportunities and social issues.

Moving forward in the pursuit of opening up new horizons, ZUFEST is aiming to launch programs in line with the market needs. Our objective is to produce graduates in the disciplines which are not saturated hence having high job scopes. Entrepreneurial attitude shall be the highlight of ZUFEST graduates. They should have potential to be the market leaders than just a job seeker. Currently, ZUFEST embraces Departments of Civil Engineering, Electrical Engineering, Biomedical Engineering and Software Engineering. This year ZUFEST is introducing a new department of Management Technology & Information Sciences which will offer BS Management & Technology, BS Information Technology, BS Computer Engineering and BS Biotechnology.

ZUFEST is successfully running BS Software Engineering (NCCEC recognized), BS Civil Engineering, BS Electrical Engineering, BS Biomedical Engineering (with due recognition from Pakistan Engineering Council) & BS Electrical Engineering programs. After entering the partnership in establishing first ever National Center for Big Data & Cloud Computing, ZUFEST is launching BS Data Science under the umbrella of Department of Software Engineering in coming
academic year.
In a nutshell, ZUFEST has following programs to offer:

**Engineering Programs**
- BS Civil Engineering
- BS Electrical Engineering
- BE Biomedical Engineering

**Computing Programs**
- BS Software Engineering
- BS Data Science

**Technology Programs**
- BS Biotechnology (AgTech)
- BS Electrical Technology (Evening)
- BS Civil Technology (Evening)
- BS Biomedical Equipment Technology

**Management Programs**
- BS Management & Technology (Morning)
- Finance, Marketing, Banking, HRM, Economics, Information Technology, Hotel Management

**Postgraduate Programs**
- MS Electrical Engineering (Telecommunication, Automation & Control, Computer Networks & Data Communication)
- PhD Electrical Engineering

### GENERAL POLICIES

**Admission Procedure**
1. Obtain the admission form from the admission office or download from official website of the university.
2. Fill the form and attach all the required documents with it and submit it to the same office before the last date.
3. Eligible applicants have to appear in admission test and an interview, at the time of interview bring the original testimonial for verification.
4. Selected candidates shall be notified to submit the fee according to the fee schedule within deadline.

**Semester Course Registration Rules**
1. Student may not register for more than 20 CH per semester including regular or repeated courses.
2. Student may drop any registered course within one calendar month. The course fee shall be adjusted during next course registration.
3. Pre-Requisite & its advance course may not be registered in the same semester. It shall only be allowed if student is taking the pre-requisite course for grade improvement.
4. Student shall register him/herself for the semester within given deadlines but rights of approving the registration shall be with concerned Batch /Class Advisor.
5. Batch /Class Advisor shall have to ensure all requisites of registration & course selection before approval.
6. Student shall have to pay advance fee for registered number of CH plus semester registration fee before the given deadline, the registration shall be considered cancelled otherwise.
7. Summer Semester may be offered if in any specific pre-requisite course the number of repeaters is more than 30% of the class and/or to facilitate the senior batch students in getting their degrees within the same academic year.
8. Student may not freeze two consecutive semesters in a calendar year, excluding summer semester.
9. A student can apply for withdrawal from any course with the recommendation of Batch/Class Advisor followed by approval of Concerned Chairman two weeks before the final examination.
10. Full fee shall be charged for any withdrawn course(s). There shall be “no full or partial refund of fee” allowed under any circumstances.
11. Grade “W” will be marked in the transcript for any withdrawn course and shall not be counted in the calculation of CGPA/SGPA. The same course cannot be withdrawn twice.

**Examination & Grading System**
- Semester system of examination is proposed as required for other programs at ZUFEST with relative grading (provided recommended numbers of students by HEC are enrolled in a certain batch)
- Minimum CH limit for each semester is 9 and maximum is 20.
- Grading Map (for prospectus only)

**Admission by Migration**
Under extraordinary circumstances, the Vice-Chancellor, on the recommendation of the Dean/Principal concerned may allow migration of a student from other recognized institutions to the university and vice versa, provided that:
- The academic councils of the institutions are agreed on the migration of student.
- The courses of studies are equivalent. The credits earned in the previous institution may be permitted to be transferred to other institutions to

**INTRODUCTION**
Ziauddin University, Faculty of Engineering Science and Technology is offering 4 years bachelor program entitling BE Biomedical Engineering at Ziauddin University. Biomedical Engineering is more focused on the instrumentation and biomedical computing. The instrumentation or more formally, Bioinstrumentation is the field for travel enthusiastic person, as the installation, sales and service of the Biomedical Instruments. It keeps the engineers on the wheel, in order to maintain the instruments operational for the patient support in hospitals, pharmaceutical industries and health care laboratories. Moreover, the instrumentation track of Biomedical Engineering also serves humanity by developing assistive devices for patients and elderly people. The patient can wear the robotic suits, also known as Exo-Skeleton.

**VISION**
To become a top tier Department of Biomedical Engineering across the nation by importing engineering knowledge to serve health care industry with excellence.

**MISSION**
The Department of Biomedical Engineering aims to serve the society in the best manner wherein the graduates will be equipped with required technical and interpersonal skills, motivated for research and lifelong learning; ethical values along with leadership and entrepreneurship qualities.

**DEPARTMENT OF BIOMEDICAL ENGINEERING**

- **BS Biotechnology**
- **BE Biomedical Engineering**

These suits assist the wearer in achieving the mobility they lost due to trauma or other factors. Also, the development and rehabilitation of Artificial limbs lies under the umbrella of Instrumentation Track. The emerging focus area of Biomedical Engineering at ZUFEST shall be Biomedical Computing. The biomedical computing facilitates the development of complex biomedical systems like clinical and computer-based decision support, knowledge acquisition and management, medical imaging, computational intelligence in bio-clinical medicine, molecular medicine, and healthcare organizational aspects. It implies the use of Artificial intelligence for the purpose of machine learning, bioinformatics for genes and protein modeling, and Medical Image Processing. In order to incorporate these skills with the knowledge of the students, Biomedical Engineering of ZUFEST introducing Telemedicine system, Computational Fluid Dynamics, Bioinformatics, and Hospital information system. Five batches of Biomedical Engineering have been successfully passed out and accredited by HEC, and almost all the students are well placed at suitable biomedical jobs in the market. The curriculum is in line with HEC/NCIEC.

**Department of Biomedical Engineering is offering following programs**
- **BE Biomedical Engineering**
- **BS Biotechnology**
- **BS Biomedical Equipment Technology**
BE BIOMEDICAL ENGINEERING

**SCOPE & OPPORTUNITIES**

Biomedical Engineering is one of the emerging fields which combines Engineering expertise with the needs in the medical industry for the growth and development of the healthcare sector. It is the unique branch of Engineering in which the concepts, knowledge, expertise and skills are designated and applied to the field of biology and medicine in order to meet the daily challenges. Pakistan has a growing biomedical industry with the increased development of surgical tools, update of instrumentations in the hospitals and spending of large budgets on the research & development.

A biomedical Graduate is able to:
- Design biomedical equipment and devices, such as artificial internal organs, replacements for body parts, and machines for diagnosing medical problems.
- Install, adjust, maintain, repair, or provide technical support for biomedical equipment.
- Evaluate the safety, efficiency, and effectiveness of biomedical equipment.
- Train clinicians and other personnel on the proper use of biomedical equipment.
- Research the engineering aspects of the biological systems of humans and animals with life scientists, chemists, and medical scientists.
- Prepare procedures, write technical reports, publish research papers, and make recommendations based on their research findings.
- Present research findings to scientists, nonscientist executives, clinicians, hospital management, engineers, other colleagues, and the public.

**PROGRAM EDUCATIONAL OUTCOMES**

- **PEO 1**: Able to solve complex biomedical engineering problems using fundamental principles of technical, basic and health sciences.
- **PEO 2**: Able to compete in the field of research and development by incorporating lifelong learning using modern tools and techniques and responsive to the demands of society in ethics, professional and safe manners.
- **PEO 3**: Able to possess leadership and communication skills essential for the project management and entrepreneurship to serve the healthcare industry in the best possible way.

**PROGRAM LEARNING OUTCOMES**

Program learning outcomes are the knowledge, skills, and capabilities students should possess by the time of graduation. The ZUFEET Electrical Engineering program prepares students to attain the educational objectives by ensuring that students demonstrate achievement of the following learning outcomes. Electrical engineering students will demonstrate the following attributes by the time they graduate:

- **PLO 1**: Engineering Knowledge: An ability to apply knowledge of computer science, software engineering fundamentals, applied mathematics, management science and an engineering specialization to the solution of complex software engineering problems.
- **PLO 2**: Problem Analysis: An ability to identify, formulate, research literature and analyze complex software engineering problems reaching substantiated conclusions using software engineering principles, natural sciences and engineering sciences.
- **PLO 3**: Design/Development of Solutions: An ability to design solutions for complex software 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.
- **PLO 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.
- **PLO 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.
- **PLO 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.
- **PLO 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.
- **PLO 8**: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice.
- **PLO 9**: Individual and Team Work: An ability to work effectively, as an individual or in a team, on multifaceted and interdisciplinary settings.
- **PLO 10**: Communication: 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.
- **PLO 11**: Project Management: 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.

**SCHEME OF STUDY**

**SEMESTER 1**

<table>
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<tr>
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<td>EE-211</td>
<td>Basic Electrical Engineering</td>
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<tr>
<td>BS-114</td>
<td>Calculus &amp; Analytical Geometry</td>
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<tr>
<td>BM-311</td>
<td>Biomedical Instrumentation 1</td>
<td>3+1</td>
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<tr>
<td>BS-211</td>
<td>Applied Physics</td>
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<tr>
<td>BS-212</td>
<td>Linear Algebra &amp; Differential Equation</td>
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<td>EE-311</td>
<td>Microprocessor &amp; Interfacing</td>
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<tr>
<td>BS-312</td>
<td>Numerical Methods</td>
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<td>BS-114</td>
<td>Calculus &amp; Analytical Geometry</td>
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<tr>
<td>BM-213</td>
<td>Biomedical Electronics</td>
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<td>Applied Physics</td>
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<td>Medical Imaging</td>
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<tr>
<td>EE-311</td>
<td>Microprocessor &amp; Interfacing</td>
<td>2+1</td>
</tr>
<tr>
<td>BS-312</td>
<td>Numerical Methods</td>
<td>3+0</td>
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<tr>
<td>EE-311</td>
<td>Microprocessor &amp; Interfacing</td>
<td>2+1</td>
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<td>BS-312</td>
<td>Numerical Methods</td>
<td>3+0</td>
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<tr>
<td>BM-311</td>
<td>Biomedical Instrumentation 1</td>
<td>3+1</td>
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**SEMESTER 8**

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<tr>
<td>HS-402</td>
<td>Professional Practices &amp; Ethics</td>
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<td>BM-314</td>
<td>Biomedical Control Systems</td>
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<td>BM-315</td>
<td>Biomaterials</td>
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**FEE STRUCTURE**

- **Fee/Credit hour + Exam fee**: Rs. 5,500/-
- **No. of credit hours**: 138
- **Semester Registration fee**: Rs. 5,000/-
- **Total Semester**: Rs. 788,000/-
- **Processing fee**: Rs. 5,000/-
- **Admission fee**: Rs. 25,000/-
- **Security Deposit**: Rs. 25,000/- (refundable)
- **Student activity fee**: Rs. 2,000/-

Note: Any additional taxes imposed by the government will be the liability of the student/parent/guardian. The University reserves the right to increase the fees if required according to the recommendation of the Governing Body. At the time of admission, selected candidates will be required to deposit fee. Therefore monthly or semester fee will be deposited by students within two weeks of commencement of every semester in advance according to the official notification on the notice board. 2% surcharge per month will be levied on outstanding fees after the due date. The students claiming exemptions from any course or courses will be required to pay exemption fee (Rs. 2,500/-) per subject in the beginning of the semester. Fees once deposited are not refundable, except security deposits, for any reason whatsoever.
BS BIOTECHNOLOGY

SCOPE & OPPORTUNITIES
Biotechnology is defined as the application of biological systems to basic and technical and industrial processes. Biotechnology has applications in health, environment, and industry. The graduates of biotechnology program will play a significant role in the development of national and international level by rendering their services as a scientist, analyst and expert.

The potential employment area for the graduates of Biotechnology are Pharmaceutical and Health science Industries. Also, countless opportunities are available in Clinical Laboratories, research institutes and teaching institutions.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)
Consistent with the Department of BME Vision and Mission. The Program Educational Objectives of the study program BS Biotechnology are:

• PEO 1: To produce graduates who will contribute to the field of biotechnology and allied industries designing, developing and providing solutions to improve current processes and development.

• PEO 2: To produce entrepreneurs and team leaders having theoretical and practical knowledge of the instruments, techniques and methods with strong ethics and management skill.

• PEO 3: To produce graduates with the ability to initiate scientific research and pursue higher education in reputed Institute at national and international level.

PROGRAM LEARNING OUTCOMES (PLO’S)

PLO 1: Knowledge: Graduates will gain and apply knowledge of Biotechnology and related Sciences concepts to solve problems pertaining to field of Biotechnology.

PLO 2: Problem Analysis: Graduates will be able to identify, analyze and understand problems relating to biotechnology and finding valid conclusions with basic knowledge in biotechnology Engineering.

PLO3: Design/Development of Solutions: Graduates will be able to design and develop solution to Biotechnology Engineering problems by applying appropriate tools.

PLO 5: Modern Tool Usage: Graduates will be able to decide and apply appropriate tools and techniques in biotechnological analytics and manipulation.

PLO 7: Environment and Sustainability: Graduates will be able to understand the need and impact of biotechnological solutions on environment and societal context keeping in view need for sustainable solution.

PLO 9: Individual and Team Work: Graduates will be able to undertake any responsibility as an individual and as a team in a multidisciplinary environment.

PLO 10: Communication: Able to communicate effectively and broadly defined technical activities. Also, able to comprehend and write effective reports and documentation to give and receive clear instructions.

PLO 11: Project Management: Graduates will have thorough knowledge in Biotechnology and will also be ready to engage themselves in lifelong learning.

PLO 12: Lifelong Learning: Graduates will be motivated and have the preparation ability to engage in lifelong learning for technological change.

SCHEME OF STUDY

SEASON 1

<table>
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<tr>
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<th>Name of Subject</th>
<th>Credits</th>
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<tr>
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<td>Physics-I (C)</td>
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Total Credits: 18

SEASON 2

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Total Credits: 17

SEASON 3

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Total Credits: 17

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<td>3</td>
<td>English-VII (C)</td>
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<td>English-VIII (C)</td>
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Total Credits: 19

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<td>Biology-VII (F)</td>
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Total Credits: 18

DURATION OF STUDIES
Program: BS Biotechnology
Duration (Minimum): 4 years
Duration (Maximum): 7 years

ELIGIBILITY
1. 12 years of education with 50% marks or above in Intermediate (Pre Medical) or equivalent examination.
2. Minimum score for eligibility is 50% in the ZU Admissions Test and Interview.

Note: Candidates who have completed 12 years of education and obtained degrees other than Matriculation (SSC) or Intermediate (HSSC) are required to obtain an equivalence certificate from the Inter Board Committee of Chairman (IBCC).

FEE STRUCTURE

Fee/Credit hour + Exam fee: Rs. 4,500/-
No. of credit hours: 134
Semester Registration fee: Rs. 3,000/-
Total Semester: 8
Total Program fee: Rs. 643,000/-
Processing fee: Rs. 5,000/-
BS BIOMEDICAL EQUIPMENT TECHNOLOGY

SCOPE & OPPORTUNITIES

With an associate degree in Biomedical Equipment technology, students are prepared for entry-level jobs trouble shooting, diagnosing, repairing and calibrating biomedical equipment. Further, the graduation in the Biomedical Equipment Technology allows students willing to broaden their knowledge perspective after the completion of Diploma in Associate Engineering. The evening program allows them to continue their education without compromising with their job responsibilities. This will not only provide them with ease of mind but also enable them for self-sustainability.

Graduates of Biomedical Equipment Technology will be able to work in the Pharmaceutical industries, Hospitals, Patient care facilitation center, health practitioner offices, and Doctor’s offices with medical testing equipment.

PROGRAM EDUCATIONAL OUTCOMES

Consistent with the Department of Biomedical Equipment technology, the Program Educational Objectives of the study program BS Biomedical technology are:

• PEO 1: To produce graduates who will be equipped with the knowledge of Science, Technology, mathematics, modern tools and skills to propose ideas and solutions, culminating into a technology or equipment in healthcare system.

• PEO 2: To produce graduates able to monitor, repair and calibrate the products using modern techniques in biomedical equipment technology and related fields.

• PEO 3: To produce graduates who will be able to design and develop solution of biomedical equipment technology and will also be ready to interpret data for investigating complex problems in biomedical equipment technology and related fields.

• PEO 4: Investigation: Graduates will be able to analyze and interpret data for investigating complex problems in biomedical equipment technology and related fields.

• PEO 5: Modern Tool Usage: Graduates will be able to decide and apply appropriate tools and techniques in biomedical equipment technological manipulation.

• PEO 6: Technologist and Society: Graduates will be able to justify societal, health, safety and legal issues and understand his responsibilities in biomedical equipment technological practices.

• PEO 7: Environment and Sustainability: Graduates will be able to understand the need and impact of biomedical equipment technology solutions on environment and societal context keeping in view need for sustainable solutions.

• PEO 8: Ethics: Graduates will have knowledge and understanding of related norms and ethics in biomedical equipment technology development.

• PEO 9: Individual and Team Work: Graduates will be able to undertake any responsibility as an individual and as a team in a multidisciplinary environment.

• PEO 10: Communication: Able to communicate effectively and broadly defined technical activities. Also, able to comprehend and write effective reports and documentation to give and receive clear instructions.

• PEO 11: Project Management: Graduates will have thorough knowledge in biomedical equipment technology and will also be ready to engage themselves in lifelong learning.

PROGRAM LEARNING OUTCOMES

PLO 1: Knowledge: Graduates will gain and apply knowledge of biomedical equipment technology. Science and technology concepts to solve problems related to field of biomedical equipment technology.

PLO 2: Problem Analysis: Graduates will be able to identify, analyze and understand problems related to biomedical equipment technology and finding valid conclusions with basic knowledge in biomedical equipment technology.

PLO3: Design/Development of Solutions: Graduates will be able to design and develop solution to biomedical equipment technology problems by applying appropriate tools while keeping in mind safety factor for environmental & society.

PLO 4: Investigation: Graduates will be able design, perform experiments, analyze and interpret data for investigating complex problems in biomedical equipment technology and related fields.

PROGRAM STRUCTURE

The following scheme of study is proposed for the BS Biomedical Equipment Technology.

DURATION OF STUDIES

Program: BS Biomedical Equipment Technology
Duration: 4 years
Duration (Maximum): 7 years

ELIGIBILITY

1. 12 years of education with 50% marks or above in Intermediate (Pre-Engg. and Pre-Med) or DAE or equivalent examination.

Note: Candidates who have completed 12 years of education and obtained degrees other than Matriculation (SSC) or Intermediate (HSSC) are required to obtain an equivalence certificate from the Inter Board Committee of Chairman (IBCC).

FEE STRUCTURE

Processing Fees (Once): Rs. 2,500/-
Admission Fee (Once): Rs. 15,000/-
Security Deposit: Rs. 5,000/-
Tuition Fee: First Year: Rs. 10,000/-

Option 1: Uniform Monthly Installment

Admission + Security (At the time of Admission): Rs. 15,000/- + Rs. 5,000/-
1st installment (At the time of Admission): Rs. 7,000/-

Option 2: Lump sum for each Year
First Year: Rs. 15,000/-
Next Three Years: Rs. 84,000/- (Tuition + Examination Fee)

Note: Any additional taxes imposed by the government will be the liability of the students/parents/guardian.

The University reserves the right to increase the fees if required according to the recommendations of the Governing Body.

At the time of admission, selected candidates will be required to deposit fee either under Option 1 or Option 2. Therefore monthly or semester fee will be deposited by students within two weeks of commencement of every semester in advance according to the official notification on the notice boards. 2% surcharge per month will be levied on outstanding fees after the due date.

The students claiming exemptions from any course or courses will be required to pay exemption fee Rs. 2,500/- per subject in the beginning of the semester.

Fees once deposited are not refundable, except security deposits, for any reason whatsoever.
With current industrial and infrastructure growth in Pakistan such as CPEC, it is expected that human resource demand in engineering and technological areas shall rise. Huge market for Electrical Engineers are forecasted with the emerging Industrial Units, Power Generation & Distribution Plants etc. After completing the BS Electrical Engineering graduates can:

- Start their own business as an entrepreneur engineer.
- Performances in power generation station, E-Electric, K-Electric, WAPDA, public health, radio and TV broadcasting, fuel gas etc.
- Start jobs in the industrial zone (textile, automotive, heavy manufacturing plants).
- Can work as Engineer in Pakistan Atomic Energy Commission, CGDCC, and Pakistan Railways and other Government and private organizations.
- Junior Lecturer in Engineering University/Institute.
- Pursue higher studies from national/international universities.

**Program Educational Outcomes**

- **PEO 1**: To produce graduates that are technically skillful and competent to formulate, analyze and solve complex engineering problems using appropriate technological tools and techniques.
- **PEO 2**: To produce employable graduates with effective communication skills that successfully and ethically practice electrical engineering and technology-related fields.
- **PEO 3**: To produce graduates motivated for lifelong learning through research and entrepreneurship.
- **PEO 4**: To produce graduates with the capacity to work as an effective team member and strong leadership qualities.

**Program Learning Outcomes**

Program learning outcomes are the knowledge, skills, and capabilities students should possess by the time of graduation. The ZUFEST Electrical Engineering program prepares students to attain the educational objectives by ensuring that students demonstrate achievement of the following student outcomes. Electrical Engineering students will be motivated by the following attributes by the time they graduate:

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

  - Problem Analysis: An ability to identify, formulate, research literature and analyze complex software engineering problems reaching substantiated conclusions using software engineering principles, natural sciences and engineering sciences.
  - Design/Development of Solutions: An ability to design solutions for complex software engineering problems and system design, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.
  - Investigation: An ability to investigate complex problems using modern research techniques and methods.
  - Modern Tool Usage: An ability to 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.
  - 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.
  - 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.
  - Ethics: An ability to apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice.
  - Individual and Team Work: An ability to work effectively, as an individual or in a team, on multidisciplined and/or multidisciplinary settings.
  - 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.
  - 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 multi-
The Department of Electrical Engineering follows NCRC/HEC guidelines for distribution of credit hours between core and elective courses. Any changes to the curriculum are only made after a thorough deliberation in the board of studies (BOS) meetings, which is also attended by external experts. Following table shows the comparative analysis of NCRC and ZUST for Engineering and Non-Engineering domain courses.

### LENGTH OF DEGREE PROGRAM
- Minimum 4-years and maximum 7 years (136 Credit Hours)

### ELIGIBILITY
To be admitted to the Bachelor of Science in Electrical Engineering BS degree Program students have to satisfy following requirements:
- Minimum 60% marks in HSC (Pre-Engineering Group) / A-Level or equivalent qualification / DAE in Electrical and Electronics Technology with 60% marks in the relevant discipline are required for admission.
- Students are required to appear for a written test and interview.

### FEE STRUCTURE
Fee/Credit Hour + Exam Fee:  Rs. 5,500/-
No of Credit Hours:  136
Total Semester:  8
Total Program Fee:  Rs. 788,000/-
Processing fee:  Rs. 5,000/-
Admission fee:  Rs. 25,000/-(refundable)

Student activity fee:  Rs. 2,000/-

Note: Any additional taxes imposed by the government will be the liability of the students/parents/guardian.

The University reserves the right to increase the fees if required according to the recommendation of the Governing Body. At the time of admission, selected candidates will be required to deposit fee. Therefore monthly or semester fees will be deposited by students within two weeks of commencement of every semester in advance according to the official notification on the notice board. 2% surcharge per month will be levied on outstanding fees after the due date.

The students claiming exemptions from any course or courses will be required to pay exemption fee @ Rs. 2,500/- per subject in the beginning of semester.

Fees once deposited are not refundable, except security deposits, for any reason whatsoever.
BS ELECTRICAL TECHNOLOGY

With current industrial and infrastructure growth in Pakistan, it is expected that human resource demand in technical areas shall rise. Huge market for Electrical Technologist is forecasted with the emerging Industrial Units, Power Generation & Distribution Plants etc. After completing the BS Electrical Technology graduates can:

• Start their own business as Electrical Technologist.
• Placements in power generating station, WAPDA, public health, radio and TV broadcasting, Sul gas etc.
• Start jobs in the industrial zone (textile, automotive, manufacturing plants).
• Can work as Technologist/Technician in Pakistan Atomic Energy Commission, OGDC, and Pakistan Railways and other Government and private organizations.
• Junior Lecturer in Technical education.

PROGRAM EDUCATIONAL OUTCOMES

The Program Educational Objectives (PEO) of the BS in Electrical Technology program are as under:

• PEO 1: To produce graduate with strong mathematical, electrical and hands-on knowledge that lead them into a successful career as an electrical technologist.
• PEO 2: To produce graduates that can demonstrate its technical and communication skills to solve electrical technology programs as an individual or team member.
• PEO 3: To prepare graduates with high ethical and professional standards with an entrepreneurial spirit that have a strong impact on the socioeconomic growth of the society and nation at large.

CREDIT HOUR DISTRIBUTION

The Department of Electrical Engineering follows NCOC/NEC guidelines for distribution of credit hours between core and elective courses. Any changes to the curriculum are only made after thorough deliberation in the board of studies (BOS) meetings, which is also attended by external experts. Following shows the total credit hours and duration of the programme along with duration, maximum load and maximum number of modules per semester.

Total numbers of Credit hours: 131
Duration: 4 years
Semester duration: 16-18 weeks
Seminesters: 8
Module Load per Semester: 15-18 Cr. Hrs
Number of Modules per semester: 5-6

LENGTH OF DEGREE PROGRAM

Minimum 4-years and maximum 7 years (131 Credit Hours)

ELIGIBILITY CRITERIA

To be admitted to the Bachelors of Science in Electrical Technology BS degree Program students have to satisfy following requirements:
• Minimum 50% in SSC and HSC.
• HSC with Pre-Engineering, Pre-Medical, Arts & Humanities with Additional Maths subjects.
• 3 years Diploma in Electrical/Electronics/Computer/Computer Biomedical and any other relevant field with min. 60%.

FEE STRUCTURE

Processing Fees (Once): Rs. 2,500/-
Admission Fee (Once): Rs. 15,000/-
Security Deposit: Rs. 5,000/-
(Once & Refundable)
Tuition Fee: (First Year)
Examination: Rs. 74,000/-
(per year)

Option 1: Uniform Monthly Installment

Admission + Security At the time of Admission: Rs. 10,000/- + Rs. 5,000/-
1st Installment (At the time of Admission): 7,000/-
Monthly Installment (47 Installments: tuition fee + Examination Fee): Rs. 7,000/-

Option 2: Lump sum for each Year

First Year: Rs.104,000/-
Next Three Years Rs. 84,000/- (Tuition + Examination Fee)

Note: Any additional taxes imposed by the government will be the liability of the students/parents/guardian.

The University reserves the right to increase the fees if required according to the recommendation of the Governing Body.

At the time of admission, selected candidates will be required to deposit fee either under Option 1 or Option 2. Therefore monthly or semester fee will be deposited by students within two weeks of commencement of every semester in advance according to the official notification on the notice board. 2% surcharge per month will be levied on outstanding fees after the due date.

The students claiming exemptions from any course or courses will be required to pay exemption fee i.e. Rs. 2,500/- per subject in the beginning of semester.

Fees once deposited are not refundable, except security deposits, for any reason whatsoever.
MS ELECTRICAL ENGINEERING

There are three MS tracks offering in the field of Electrical Engineering at ZUFEAT. These specialized streams/track and scheme of study are as follows:

a) Control and Automation
b) Computer & Communication Networks
c) Telecommunication Systems

Each MS student has to select four courses from the list of core courses and four or six elective courses from the specialization stream. A student can opt six credit hours research work/thesis instead of two courses from the specialization stream.

LIST OF CORE COURSES

EE 801 Research Methodology
EE 802 Analysis of Stochastic Systems
EE 803 Advanced Simulation and Modelling
EE 811 Linear System Theory
EE 812 Advanced Digital Signal Processing
EE 813 Optimization Theory

SPECIALIZATION: CONTROL AND AUTOMATION

EE 821 Electronic System Design
EE 822 Advanced Instrumentation
EE 823 Advanced Power Electronics
CS 810 Neural and Fuzzy Systems
CS 811 Machine Vision
EE 824 Robotics
EE 825 Advanced Digital System Design
EE 826 Adaptive Control Systems
EE 850 Adaptive Filter Design
EE 827 PLCs and Control Systems
EE 841 Convex Optimization
EE 842 Multivariable Control Theory
CS 830 Network and Embedded Control Systems
CS 843 Non-Linear Control Systems
EE 844 Optimal Control Systems
EE 845 Predictive Control
EE 834 Process Control
EE 840 Selected Topics in Control and Automation
EE 846 Mobile Robotics
EE 828 Advanced Classical Control Systems

SPECIALIZATION: TELECOMMUNICATION SYSTEMS

TS 801 Advanced Communication Networks
TS 802 RF and Microwave Engineering
CS 802 Advanced Computer Networks
TS 805 Optical Communication Systems
CS 803 Information Theory and Coding
CS 804 Internet Protocols
TS 803 Advanced Digital Communication
CS 810 Communication and Network Security
EE 831 Error Control Coding
CS 823 High-Speed Broadband Networks
CS 824 Internetworking Architectures, Protocols and Applications
CS 825 P Telephony and Voice over IP
CS 826 MultiLayer Switching Architecture
CS 830 Network Management
CS 831 Network Performance Analysis
CS 812 QoS Architectures for Multimedia-Enabled Wireless Systems
TS 810 Telecommunication Traffic Engineering
TS 804 Wireless and Mobile Communication Systems
TS 821 Next Generation Networks
TS 811 Wireless Multiple Access Communication
CS 822 Wireless Sensor Networks
TS 806 Satellite, Fixed and Mobile Radio Systems
TS 814 Electromagnetic Compatibility and Interface
TS 807 Digital Design for Communication Systems
TS 831 Selected Topics in Communication Systems
TS 832 GIS and Remote Sensing
TS 808 Queuing Theory
TS 809 Radar Systems
EE 850 Adaptive Filter Design

SPECIALIZATION: COMPUTER AND COMMUNICATION NETWORKS

CS 825 P Telephony and Voice over IP
CS 826 MultiLayer Switching Architecture
CS 830 Network Management
CS 831 Network Performance Analysis
CS 812 QoS Architectures for Multimedia-Enabled Wireless Systems
TS 810 Telecommunication Traffic Engineering
TS 804 Wireless and Mobile Communication Systems
TS 821 Next Generation Networks
TS 811 Wireless Multiple Access Communication
CS 822 Wireless Sensor Networks
TS 806 Satellite, Fixed and Mobile Radio Systems
TS 814 Electromagnetic Compatibility and Interface
TS 807 Digital Design for Communication Systems
TS 831 Selected Topics in Communication Systems
CS 832 GIS and Remote Sensing
TS 808 Queuing Theory
TS 809 Radar Systems
EE 850 Adaptive Filter Design

TITLE OF PROGRAM TO BE APPEAR ON DEGREE

Master of Science in Electrical Engineering

ELIGIBILITY CRITERIA

16 Years of education in the relevant discipline. Minimum CGPA 2.50/4.00 or 60% marks. Passed GAT (General) or the University admission test.

DURATION OF DEGREE PROGRAM

Typical / Average duration for MS Electrical program is 1.5 years (4 years maximum). A general semester-wise break-up is as follows:

MS ELECTRICAL ENGINEERING

THESIS WORK

Besides 24 CH of coursework, MS students optionally complete 6 CH of research work instead of two courses. The thesis may be taken after completing 18CH (minimum).

MS ELECTRICAL ENGINEERING DEGREE REQUIREMENTS

For the award of MS Equivalent degree, candidates will either need to complete 30 credit hours of coursework or complete 24 credit hours of coursework along with a minimum of 6 credit hours for research work/thesis.

FEE STRUCTURE

MS (Non Thesis) Processing Fee Rs. 5,000/-
Admission Fee Rs. 5,000/-
Enrollment Fee Rs. 5,000/-
Security Deposit (Refundable) Rs. 5,000/-
Examination Fee/ semester Rs. 9,000/-
Tuition Fee (per course) Rs. 15,000/-

MS (with Thesis) Processing Fee Rs. 5,000/-
Admission Fee Rs. 5,000/-
Enrollment Fee Rs. 5,000/-
Security Deposit (Refundable) Rs. 5,000/-
Examination Fee/ semester Rs. 9,000/-
Tuition Fee (per course) Rs. 15,000/-

Enrollment Fee Rs. 5,000/-
Security Deposit (Refundable) Rs. 5,000/-
Supervision Fee Rs. 20,000/-
Dissertation/ Thesis Evaluation Fee Rs. 20,000/-
GEC Evaluation Fee Rs. 10,000/-
Viva Voce Exam Fee Rs. 10,000/-
Examination fee/ semester Rs. 9,000/-
Tuition Fee (per course) Rs. 15,000/-

Note: Any additional taxes imposed by the government will be the liability of the students/parents/guardian.

The University reserves the right to increase the fees if required according to the recommendations of the Governing Body.

At the time of admission, selected candidates will be required to deposit fees. Therefore monthly or semester fee will be deposited by students within two weeks of commencement of every semester in advance according to the official notification on the notice board. 2% surcharge per month will be levied on outstanding fees after the due date.

The students claiming exemptions from any course or courses will be required to pay exemption fee at Rs. 2,500/- per subject in the beginning of each semester.

Fees once deposited are not refundable, except security deposits, for any reason whatsoever.
PHD IN ELECTRICAL ENGINEERING

Every Ph.D. student must select one Area of Specialization (AoS) in consultation with GEC/Supervisor. A Ph.D. student must take four courses from AoS as major subjects including Independent Study. There are two Compulsory courses for Ph.D. students namely Research Methodology and Simulation & Modeling. A program structure of Ph.D. Electrical Engineering is given as:

<table>
<thead>
<tr>
<th>Course Description</th>
<th>No. of CH</th>
<th>Total Coursework Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area of Specialization</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>Compulsory Courses</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Thesis/Dissertation</td>
<td>30</td>
<td>48</td>
</tr>
</tbody>
</table>

- **QUALIFYING EXAMINATION**
  - After successful completion of Ph.D coursework, a Ph.D. student will undergo qualifying comprehensive examination from the entire coursework of Ph.D.
  - The qualifying examination will be held twice a year.
  - A student will take qualifying exam as soon as possible after completion of coursework but in no case beyond 06 months.
  - The examination will be conducted in two parts.

  | Part A – Written Comprehensive Examination | Chairperson of the department in consultation with Subject teachers will finalize the question papers for written comprehensive examination. |
  | Part B – Oral Examination                 | The examination will cover entire Ph.D coursework of the student. Duration of the exam will be 03 hours with 60% as minimum passing marks. |

- **PHD COURSE WORK**
  - Course work of 18 credit hours preferably in the first year is required to be completed scoring minimum 3.0 CGPA out 4.0 and followed by a comprehensive examination for granting candidacy as Ph.D researcher.

- **DISSERTATION SYNOPSIS**
  - After passing Ph.D Qualifying Examination Part A and B, a student must carry out literature survey and prepare a written synopsis of his/her intended topic of research and present the same along with research plan in Ph.D research proposal defense exam for evaluation by GEC. After evaluation of the synopsis, the case will be forwarded to BASR for approval. The case for any change in research topic or any change in GEC will also be forwarded to BASR for approval.

- **PHD CANDIDACY**
  - Qualification and advancement to Ph.D candidacy is subject to:
    - Passing Ph.D coursework with required CGPA
    - Writing and successfully defending the research proposal

- **PLAGIARISM TEST**
  - It is a mandatory part of dissertation evaluation process. The supervisor will make sure that prior to submission, research work passes through anti-plagiarism software before it is sent for evaluation.

- **DISSERTATION EVALUATION REPORT**
  - A Positive report by GEC and two foreign experts (in relevant area) from technologically/academically advanced foreign countries is essential.
  - The foreign experts must be from HEC approved journals/international conferences of good repute, out of which at least one research paper must be published in an HEC indexed journal with Impact factor in the relevant area as specified by DRC.

- **DISSERTATION DEFENSE**
  - Open defense of dissertation is an essential part of the Ph.D. program after positive evaluation. The student must successfully defend his/her dissertation followed by viva voce examination to be conducted by local external expert appointed by BASR.

- **DISSERTATION SUBMISSION**
  - Within 15 days of the successful defense, six copies of the thesis should be submitted. The thesis should be formatted according to the guidelines provided by the respective academic council.

- **GUIDANCE AND EXAMINATION COMMITTEE (GEC)**
  - For every Ph.D scholar, a Guidance and Examination Committee shall be formed in consultation with the supervisor preferably after admission. After successful completion of the Ph.D course work, the committee will consist of:
    - Supervisor
    - Co-Supervisor (if appointed)
    - GEC Member 1
    - GEC Member 2
    - GEC Member 3 (External)

- **APPROVAL OF PHD DISSERTATION SYNOPSIS**
  - After passing Ph.D Qualifying Examination Part A and B, a student must carry out literature survey and prepare a written synopsis of his/her intended topic of research and present the same along with research plan in Ph.D research proposal defense exam for evaluation by GEC. After evaluation of the synopsis, the case will be forwarded to BASR for approval. The case for any change in research topic or any change in GEC will also be forwarded to BASR for approval.

- **GEC EVALUATION FEES**
  - The annual GEC fee is Rs. 15,000/-
  - The annual GEC fee is Rs. 15,000/-
  - The annual GEC fee is Rs. 15,000/-

- **HEC APPROVED JOURNAL LIST**
  - The list of HEC approved journals is published annually by the Higher Education Commission of Pakistan.
bound copies of the dissertation are to be submitted. To incorporate any additional requirement of the defense committee, request may be made to Director to relax this period of submission.

Correspondence for Thesis Review
- The official emails may be used to send the thesis for review but personal email address shouldn't be used. All the correspondence should be done on official email addresses.

**PH.D. ELECTRICAL ENGINEERING DEGREE REQUIREMENT**
- 18 Cr. Hr. Coursework with CGPA 3.0 or above

**FEE STRUCTURE**
- Processing Fee  Rs. 5,000/
- Admission Fee  Rs. 20,000/
- Enrollment Fee  Rs. 5,000/-
- Security Deposit (Refundable)  Rs. 5,000/-
- Supervision Fees (Per Year)  Rs. 120,000/
- Dissertation/ Thesis Evaluation Fee  Rs. 70,000/.
- GEC Evaluation Fee (Per Year)  Rs. 15,000/-
- Viva Voce Exam Fee  Rs. 20,000/-
- Comprehensive Examination Fee  Rs. 5,000/-
- Examination fee /Semester  Rs. 9,000/-
- Tuition Fee (per course)  Rs. 15,000/-

**GUIDANCE AND EXAMINATION COMMITTEE**
For every PhD scholar, a Guidance and Examination Committee shall be formed in consultation with the supervisor preferably after admission. FEST RC will approve the composition. GEC will consist of:
- Supervisor
- Co-Supervisor (If appointed)
- GEC Member 1
- GEC Member 2
- GEC Member 3 (External)

**APPROVAL OF PHD DISSERTATION SYNOPH**
After passing PhD Qualifying Examination Part A and B, a student must carry out literature survey and prepare a written synopsis of his/her intended

**DEPARTMENT OF SOFTWARE ENGINEERING**

**INTRODUCTION**
Software Engineering derives its essence from computer science as other engineering disciplines do from natural or the sciences, with an emphasis on issues of process, design, implementation, maintenance, analysis and verification providing a strong foundation in engineering principles and practices as applied to software development.

Software Engineering and computer science differ in much the same way as do Electrical engineering and Physics. Generally, engineering should be concerned with applying what we already know to create products, while science is more theoretical. Therefore, the goal of computer science, according to Papam, is “to learn and extend the science”. Software Engineering on the other hand aims to use the science and technology already available to create products and tools for use.

ZFEST offering a four year degree program (133 Cr. Hr.) with a balanced mix of Computing & Software development subjects. The SE graduates develop, design and assess software that a computer uses to function. The problem solving skills are keys to the success in this endeavor. A software engineer can find its place to study existing apps, develop new software modules & programs or maintain the computer applications in a software house. IT firm, Bank etc. The average salary of Software Engineer ranges between 45,000 to 150,000 PKR. They can grow exponentially if keep updating the skill set with market needs. There’s a huge market for freelance SE graduate (Entrepreneur).

**VISION**
“Our graduates to be recognized as innovators, leaders and experts in the area of research & development, implementation and evolution of Software Engineering.”

**MISSION**
The Department of Software Engineering aims to produce graduates equipped with latest tools and technologies for the development of a knowledge based economy in Pakistan. Along with academic learning our ambition is to produce software engineers as successful innovators, entrepreneurs, researchers with emphasis on professional and social ethics for dynamic and global career.”

Department of Software Engineering is offering following programs:
- BS Software Engineering
- BS Data Science
BS SOFTWARE ENGINEERING

**SCOPE & OPPORTUNITIES**

Software engineering is the most in-demand job title across all industries, according to job site Glassdoor, employment growth for software developers between 2012 and 2022 is significantly higher than the national average for all occupations. These are some top industries where software engineers should find plenty of room for career growth:

- Research and Development
- Business and IT services
- Silicon valley Hi tech
- Government and Defense
- Retail
- Healthcare

**PROGRAM EDUCATIONAL OUTCOMES**

- **PEO 1:** Possess essential knowledge of software engineering fundamentals and ability to design, analyze and investigate the appropriate procedures using modern tools also capability to solve complex software engineering problems.
- **PEO 2:** Engage and succeed in their professional careers through proactive involvement in societal needs for sustainable development, and ethical behavior.
- **PEO 3:** Demonstrate an ability to present and communicate effectively and able to perform as individual or team and show the managerial, entrepreneurial and leadership skills.
- **PEO 4:** Understand the importance of lifelong learning through professional development, specialized certifications and pursue postgraduate studies and succeed in industrial and research careers.

**PROGRAM LEARNING OUTCOMES**

Program learning outcomes are the knowledge, skills, and capabilities students should possess by the time of graduation. The UJFEST Software Engineering program prepares students to attain the educational objectives by ensuring that students demonstrate achievement of the following student outcomes:

- **PLO 1:** Engineering Knowledge: Ability to apply knowledge of computer science, software engineering fundamentals, applied mathematics, management science and an engineering specialization to the solution of complex software engineering problems.
- **PLO 2:** Problem Analysis: An ability to identify, formulate, research literature and analyze complex software engineering problems reaching substantiated conclusions using software engineering principles, natural sciences and engineering sciences.
- **PLO 3:** Design/Development of Solutions: An ability to design solutions for complex software 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.
- **PLO 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.
- **PLO 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 their limitations.
- **PLO 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.
- **PLO 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.
- **PLO 8:** Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice.
- **PLO 9:** Individual and Team Work: An ability to work effectively, as an individual or in a team, on multicasted and/or multidisciplinary settings.
- **PLO 10:** Communication: 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 critical judgements.
- **PLO 11:** Project Management: 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.
- **PLO 12:** Lifelong Learning: Ability to recognize importance of, and pursue lifelong learning in the broader context of innovation and technological developments.

**CREDIT HOUR DISTRIBUTION**

The Department of Software Engineering follows NCEAC/HEC guidelines for distribution of credit hours between core and elective courses. Any changes to the curriculum are only made after a thorough deliberation in the board of studies (BOS) meetings, which are also attended by external experts. The current ratio between core and elective courses is at 65:35, which is as per the guideline of HEC.

**SCHEME OF STUDY**

<table>
<thead>
<tr>
<th>Major Areas</th>
<th>Credit Hours</th>
<th>Core Required</th>
<th>Electives</th>
<th>Total</th>
<th>Credit %</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education</td>
<td>47</td>
<td>24</td>
<td>23</td>
<td>63%</td>
<td></td>
</tr>
<tr>
<td>National Education</td>
<td>12</td>
<td>6</td>
<td>6</td>
<td>16%</td>
<td></td>
</tr>
<tr>
<td>Management Science</td>
<td>9</td>
<td>9</td>
<td>0</td>
<td>6%</td>
<td></td>
</tr>
<tr>
<td>Humanities</td>
<td>16</td>
<td>0</td>
<td>16</td>
<td>21%</td>
<td></td>
</tr>
<tr>
<td>Management Science</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Natural Science</td>
<td>21</td>
<td>6</td>
<td>15</td>
<td>16%</td>
<td></td>
</tr>
<tr>
<td>General Education</td>
<td>28</td>
<td>28</td>
<td>0</td>
<td>21%</td>
<td></td>
</tr>
<tr>
<td>Management Science</td>
<td>9</td>
<td>9</td>
<td>0</td>
<td>6%</td>
<td></td>
</tr>
<tr>
<td>Humanities</td>
<td>16</td>
<td>0</td>
<td>16</td>
<td>21%</td>
<td></td>
</tr>
<tr>
<td>Total Numbers of Credit Hours</td>
<td>133</td>
<td>63</td>
<td>70</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

**SEMESTER 1**

<table>
<thead>
<tr>
<th>Sr.#</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Cr. Hr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CS-231</td>
<td>Software Engineering</td>
<td>2+1</td>
</tr>
<tr>
<td>2</td>
<td>EE-212</td>
<td>Digital Logic &amp; Design</td>
<td>3+1</td>
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**SEMESTER 2**

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**SEMESTER 3**

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</tr>
<tr>
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**SEMESTER 4**

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<tr>
<td>2</td>
<td>2 SE-231</td>
<td>Object Oriented Software Engineering</td>
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<td>3</td>
<td>3 SE-353</td>
<td>Software Architecture &amp; Design</td>
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<td>5 NS-312</td>
<td>Numerical and Symbolic Computing</td>
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</tr>
<tr>
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<td>Introduction to Computer Organization</td>
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**SEMESTER 5**

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**SEMESTER 6**

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**SEMESTER 7**

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<td>2</td>
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<td>3 EE-212</td>
<td>Digital Logic &amp; Design</td>
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**SEMESTER 8**

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<td>6 CS-351</td>
<td>Introduction to Computer Organization</td>
<td>3+0</td>
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</tbody>
</table>
**LENGTH OF DEGREE PROGRAM**

Program: B.S. Software Engineering  
Duration (Minimum): 4 years  
Duration (Maximum): 7 years

**ELIGIBILITY CRITERIA**

The criteria for students seeking admission to B.S. Software Engineering are as follows:  
- Minimum 50% in O Level and HOSC  
- HOSC with Pre-Engineering, Pre-Medical, Arts & Humanities with Additional Mathematics subjects  
- 3-year Diploma IT, CS with minimum 50%  
- Students are required to appear for a written test and interview.

**FEE STRUCTURE**

Fee/credit hour + Exam fee = Rs. 4,500/-  
No. of credit hours = 133  
Semester Registration fee = Rs. 5,000/-  
Total Semester = 8  
Total Program fee = Rs. 63,800/-  
Processing fee = Rs. 5,000/-  
Security Deposit = Rs. 25,000/-  
(refundable)  
Student activity fee = Rs. 2,000/-(refundable)

Note: Any additional taxes imposed by the government will be the liability of the students/parents/guardian.

The University reserves the right to increase the fees if required according to the recommendation of the Governing Body.

At the time of admission, selected candidates will be required to deposit fee. Therefore, monthly or semester fee will be deposited by students within two weeks of commencement of every semester in advance according to the official notification on the notice board. 2% surcharge per month will be levied on outstanding fees after the due date.

The students claiming exemptions from any course or courses will be required to pay exemption fee @ Rs. 2,500/- per subject in the beginning of the semester.

Fees once deposited are not refundable, except security deposits, for any reason whatsoever.

**ELIGIBILITY CRITERIA**

- 3-year Diploma IT, CS with minimum 50%
- HSC with Pre-Engineering, Pre-Medical, Arts & Humanities with Additional Mathematics subjects
- Minimum 50% in SSC and HSC

**INTRODUCTION**

With a B.S. in Data Science, you will become the next generation analyst — a data scientist with comprehensive analytical and technical skills covering all aspects of handling and analyzing data. By deriving key insights from data, you will be driving the decision-making of the future. You will learn to work in interdisciplinary teams and not only make sense of vast amounts of data, but also use your organizational knowledge and market understanding to make a difference.

Businesses and other organizations worldwide are accumulating enormous quantities of data for software or market research, disaster prediction, investment analysis, policy development, artificial intelligence, preventive initiatives in health and much more. However, there is a widespread lack of professionals with the know-how to harvest intelligence from this data. The ZUFEST Data science graduate will fill that gap in a very appropriate manner.

**SCOPE & OPPORTUNITIES**

Data Science is exponentially growing field these days especially after the evolution of big data and IoT applications. The specialized human resource in this field is highly in demand. Since students will be exposed to cases and other pedagogical tools, as well as interact regularly with the corporate sector, graduates are expected to be absorbed in the value-addition sector of Pakistan, including technology, food and beverages, transportation, telecom, automotive, and the health sectors. They will also be able to engage in start-up businesses pertaining to cloud services and data mining & management technologies.

**PROGRAM EDUCATIONAL OUTCOMES**

Consistent with the Department of SE Vision and Mission, the Program Educational Objectives of the study program B.S Data Science are:

- **PLO 1:** To produce team leaders having theoretical and practical knowledge with algorithms, instruments, techniques and methods used in field of Data Science & Management.
- **PLO 2:** To produce graduates with the ability to design & analyze small and large-scale database identifying problematic components, selecting solution strategies, implementing the necessary adjustments without compromising the professional ethics.
- **PLO 3:** To produce graduates with necessary skills needed to independently start scientific research with the ability to independently apply published results or techniques in a new context.

- **PLO 4:** Individual and Team Work: Function effectively as an individual and as a member or leader in diverse teams and in multi-disciplinary settings.
- **PLO 5:** Communication: Communicate effectively with the computing community and with society at large about complex computing activities by being able to comprehend and write effective reports, design documentation, make effective presentations, and give understandable clear instructions.
- **PLO 6:** Computing Professionalism and Society: Understand and assess societal, health, safety, legal, and cultural issues within local and global contexts, and the consequential responsibilities relevant to professional practice.
- **PLO 7:** Ethics: Understand and commit to profes-
sional ethics, responsibilities, and norms of professional computing practice. 

• PLO 10: Lifelong Learning: ability to recognize

SCHEME OF STUDY

SEMESTER 1

Sr.# Course Title
1 Introduction to Engineering
2 Programming Fundamentals
3 Numerical Methods
4 Introduction to Software Engineering
5 Data Structures and Algorithms

SEMESTER 2

Sr.# Course Title
1 Data Communication and Networking (2+1)
2 Interpersonal Communication Skills OR Foreign Language I
3 Probability Theory & Statistics II
4 Methods in Business Writing
5 Competency Development

SEMESTER 3

Sr.# Course Title
1 Calculus and Analytical Geometry
2 Object Oriented Programming
3 Multi variable Calculus
4 Methods of Data Analysis
5 Pakistan Studies

SEMESTER 4

Sr.# Course Title
1 Programming Fundamentals
2 Introduction to Financial Accounting
3 Project I
4 Introduction to Software Engineering
5 Mobile Computing

SEMESTER 5

Sr.# Course Title
1 Data Mining -I
2 Interpersonal Communication Skills OR Foreign Language I
3 Probability Theory & Statistics II
4 Methods in Business Writing
5 Data Communication and Networking (2+1)

SEMESTER 6

Sr.# Course Title
1 Calculus and Analytical Geometry
2 Object Oriented Programming
3 Multi variable Calculus
4 Methods of Data Analysis
5 Pakistan Studies

SEMESTER 7

Sr.# Course Title
1 Programming Fundamentals
2 Introduction to Financial Accounting
3 Project I
4 Introduction to Software Engineering
5 Mobile Computing

SEMESTER 8

Sr.# Course Title
1 Data Communication and Networking (2+1)
2 Interpersonal Communication Skills OR Foreign Language I
3 Probability Theory & Statistics II
4 Methods in Business Writing
5 Data Communication and Networking (2+1)

LENGTH OF DEGREE PROGRAM

Program: BS Data Science
Duration (Minimum): 4 years
Duration (Maximum): 7 years

ELIGIBILITY CRITERIA

The criteria for students seeking admission to BS Data Sciences are as follows:

• 12 years of education with 50% marks or above in Intermediate or equivalent examination.
• Minimum score for eligibility is 50% in the PU Admissions Test.

Note: Candidates who have completed 12 years of education and obtained degrees other than matriculation (SSC) or intermediate (HSSC) are required to obtain an equivalence certificate from the Inter Board Committee of Chairman (IBCC).

FEE STRUCTURE

Fee/Credit hour + Exam fee: Rs. 4,500/-
No. of credit hours: 136
Semester Registration fee: Rs. 5,000/-
Total Semester: 8
Total Program fee: Rs. 653,000/-

Processing fee: Rs. 5,000/-
Admission fee: Rs. 25,000/-
Security Deposit: Rs. 25,000/-
Student activity fee: Rs. 2,000/-

Note: Any additional taxes imposed by the government will be the liability of the student/parents/guardian. The University reserves the right to increase the fees if required according to the recommendation of the Governing Body.

DEPARTMENT OF CIVIL ENGINEERING

INTRODUCTION

Ziauddin University has recently established Faculty of Engineering Science & Technology; the endeavors of ZUFEST are Electrical Engineering, Biomedical Engineering, Civil Engineering & Software Engineering. As per the mission of University, Department of Civil Engineering is committed to provide state of the art lab facilities, interactive learning environment and highly qualified faculty.

Ziauddin University, Faculty of Engineering Science and Technology is offering 4 years program entitling BS Civil Engineering with the formulation of theory and laboratories providing complete information. The department of Civil Engineering is well equipped with laboratories of surveying, engineering mechanics, fluid mechanics & hydrology, mechanics of solids, construction engineering, material testing, drawing halls and computing lab. Not only that, the balance is created in theory and practical knowledge with the induction of highly qualified and senior faculty members having enough field and research experiences. Lab staff and attendants are also available for supporting actions. In order to strengthen the research area of Civil Engineering, departmental library has been established having sufficient number of civil engineering titles in specialization. The program has started with prior NOC from PIEC. The Curriculum is in lines with HEC/NICRC. In factual terms, by the end of course program, the student will be in position to select and set in stable point of Civil Engineering followed by technical skills learned.

VISION

The mission of the department is “To achieve excellence in acquiring skills in the domain of Civil Engineering to serve the humanity as whole by best serving the demands of society.”

MISSION

The mission of the department is “To impart fundamental education leading to the independence of knowledge and methodologies to help develop capacity for the graduates to plan, design, execute and manage the Civil Engineering projects and be outlets to the industry stakeholders”.

Department of Civil Engineering is offering following programs:
• BS Civil Engineering
• BS Civil Technology
BS CIVIL ENGINEERING

SCOPE & OPPORTUNITIES

The field of Civil Engineering is achieving its high demand with the passage of time and with growing trend. It is an undoubted truth that there is increasing number of development of high rise buildings and infrastructure so it is an immense need for the part of profession of Civil Engineer in a broader perspective of field specialization. The demand of Civil Engineering is almost equal in all areas including Construction Management, Traffic or Transportation Engineering, Geotechnical Engineering, Urban Engineering, Coastal & Harbor Engineering, Earthquake Engineering, Structural Engineering and Environmental Engineering. The area of Civil Engineering is very broad and linked with industrial development. Some salient features are as follows:

- The students will be able to explore or develop their own construction industries or business as consultants, contractors and designers.
- Imparting their knowledge in water resources area with the development of dams, barrages, canals, etc.
- Strengthen the area of Irrigation Engineering in underdeveloped areas of Pakistan.
- To produce and may get along with the transportation firms for traffic management studies, safety and accident studies, signage plans, road furniture and infrastructure improvement plans.
- Students may approach and join hands with the real testing laboratories.
- Students may play vital role with the industries for waste water treatment and solid waste management in the purview of CPEC.
- Students can engage with the public, private and education sector as well.

PROGRAM EDUCATIONAL OUTCOMES

- PEO 1: Graduates having technical and sound Engineering knowledge with basic understanding enabling them to synchronize the problems with modern techniques and investigation procedures.
- PEO 2: To produce graduates with professional development in a manner that they successfully and ethically practice in all the related fields of Civil Engineering society.
- PEO 3: Graduates with motivation of lifelong learning and impart the knowledge with design aspects and sustainability and contribute with substantial growth in Research and Development.
- PEO 4: Graduates having strong capability of team work, possessing leadership qualities, focusing entrepreneurship, and vigilant connection with stakeholder.

PROGRAM LEARNING OUTCOMES

Program learning outcomes are the knowledge, skills, and capabilities students should possess by the time of graduation. The ZUST/EST Civil Engineering program prepares students to attain the educational objectives by ensuring that students demonstrate achievement of the following student outcomes. Civil Engineering student will demonstrate the following attributes by the time they graduate:

PLO 1: Engineering Knowledge: An ability to apply knowledge of computer science, software engineering fundamentals, applied mathematics, management science and an engineering specialization to the solution of complex software engineering problems.

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

PLO 3: Design/Development of Solutions: An ability to design solutions for complex software 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.

PLO 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.

PLO 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.

PLO 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.

PLO 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.

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

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

PLO 10: Communication: 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.

PLO 11: Project Management: 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.

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

CREDIT HOUR DISTRIBUTION

The Department of Civil Engineering follows NCEER/HEC guidelines for distribution of credit hours between core and elective courses. Any changes to the curriculum are only made after a thorough deliberation in the board of studies (BOS) meetings, which is also attend by external experts. Following table shows the comparative analysis of NCEER and ZUST for Engineering and Non-Engineering domain courses.
**LENGTH OF DEGREE PROGRAM**
- Minimum 4 years and maximum 7 years (139 Credit Hours)

**ELIGIBILITY CRITERIA**
The criteria for students seeking admission to BS Civil Engineering are as follows:
- Minimum 60% marks in HSC (Pre-Engineering Group)/ A-Level or an equivalent qualification / DAE in Civil Technology/Land & Mine Surveying/Architecture with 60% marks in the relevant discipline are required for admission.
- Students are required to appear for a written test and interview.

**FEE STRUCTURE**
- Test/Credit hour + Exam fee: Rs. 6000/-
- No. of credit hours: 139
- Semester Registration fee: Rs. 5000/-
- Total Semester: 8
- Total Program fee: Rs. 87,000/-
- Processing fee: Rs. 5,000/-
- Admission fee: Rs. 25,000/-
- Security Deposit: Rs. 25,000/- (refundable)
- Student activity fee: Rs. 2,000/-

Note: Any additional taxes imposed by the government will be the liability of the students/parents/guardian.

The University reserves the right to increase the fees if required according to the recommendation of the Governing Body.

At the time of admission, selected candidates will be required to deposit fee. Therefore monthly or semester fee will be deposited by students within two weeks of commencement of every semester in advance according to the official notification on the notice board. 2% surcharge per month will be levied on outstanding fees after the due date.

The students claiming exemptions from any course or courses will be required to pay exemption fee @ Rs. 2,500/- per subject in the beginning of semester.

Fees once deposited are not refundable, except security deposits, for any reason whatsoever.

**SCOPE & OPPORTUNITIES**
The field of Civil Technology is achieving its high demand with the passage of time and with growing trend. It is an undoubted truth that there is increase in number of development of high rise buildings and infrastructure so it is an immense need to be the part of profession of Civil Engineer in a broader perspective of field specialization. The demand of this field is almost equal in its all areas including Construction Management, Traffic or Transportation, Geotechnical, Urban Engineering, Coastal & Harbor, Structures and Environmental Engineering. Some salient features are as follows:

1. The students will be able to explore or developed their own construction industries or business as consultants, contractors and designers.
2. Imparting their knowledge in water resources area with the development of dams, barrages, culverts etc.
3. Strengthen the area of Irrigation Engineering in undeveloped areas of Pakistan.
4. To produce and may get along with the transportation firms for traffic management studies, safety and accident studies, signage plans, road furniture and infrastructure improvement plans.
5. Students may approach and join hands with the soil testing laboratories.
6. Students may play vital role with the industries for waste water treatment and solid waste management in the purview of CPCB.
7. Students can engage with the public, private and education sector as well.

**PROGRAM EDUCATIONAL OUTCOMES**
- To produce graduates that are technically skilled and competent to formulate, analyze and solve problems using appropriate engineering tools and techniques.
- To produce effective and employable engineering graduates that successfully & ethically practice civil engineering skills in related fields.
- To produce graduates motivated for lifelong learning and create new knowledge and technical solution through cutting edge research and entrepreneurship.
- To produce graduates with the capacity to work as effective team member and strong leadership qualities.

**PROGRAM LEARNING OUTCOMES**
The field of Civil Technology is achieving its high demand with the passage of time and with growing trend. It is an undoubted truth that there is increase in number of development of high rise buildings and infrastructure so it is an immense need to be the part of profession of Civil Engineer in a broader perspective of field specialization. The demand of this field is almost equal in its all areas including Construction Management, Traffic or Transportation, Geotechnical, Urban Engineering, Coastal & Harbor, Structures and Environmental Engineering. Some salient features are as follows:

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**CREDIT HOUR DISTRIBUTION**
As per HEC guidelines.
## Scheme of Study

### Semester 1

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<td></td>
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<td></td>
<td>CT353 Pre-stressed &amp; Precast concrete</td>
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<td></td>
<td>CT364 Foundations Engineering</td>
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<td>CT352 Construction &amp; Hydraulic Machinery</td>
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<td>CT243 Mechanics of Solids</td>
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<td>CT232 Fluid Mechanics</td>
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<td>CT231 Soil Mechanics</td>
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<td></td>
<td>CT226 Qty Surveying &amp; Costing</td>
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<td>NS212 Applied Mathematics- II</td>
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<td>CT44X Internship / Supervised Training</td>
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<td>CT368 Steel Structures</td>
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<td>CT367 Irrigation &amp; Hydraulic Structures</td>
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<td>CT345 Hydrology &amp; Irrigation Engineering</td>
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<td>MS202 Occupational Health &amp; Safety Management</td>
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<td>CT251 Structural Analysis</td>
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<td>CT235 Water Supply &amp;Waste Water Management</td>
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### Semester 8

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<td>HS102 Islamic Studies or Ethical Behavior</td>
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<td></td>
<td>CT112 Concrete Technology</td>
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### Total Contact Hours in BS Civil Technology Program: 24+20+25+18+22+22+29+28 = 188 hours

### Total Credit Hours in BS Civil Technology Program: 17+14+18+14+16+16+15+15 = 125 hours
DEPARTMENT OF MANAGEMENT TECHNOLOGY AND INFORMATION SCIENCES

INTRODUCTION
The field of management science involves the use of analytical methods to make decisions. Management science can be used in the fields of engineering, computer science, statistics, information engineering, logistics, marketing and economics. Programs in management science provide students with the skills they need to make optimal decisions. They learn mathematical research skills and apply them to decision making processes in a variety of fields. Methods can also be used to create and manage production systems that are more efficient. Management scientists perform analysis with computer math models. Translating business problems into analytical problems, developing analytical models, managing big volumes of data, analyzing data for providing solutions across business functional areas, interpreting analytical solutions for management, and communicating analytical results to novice and advanced technical audiences in a business environment.

VISION
The vision of the department is “To be recognized as a leader in management technology & information science education producing highly capable resource pool for relevant market.”

MISSION
The mission of the department is “To produce quality graduates to add value as a critical component of corporate strategy and planning and lead economic development of Technology & Information Science sector through effective Research and Development, Entrepreneurship and lifelong learning.”

PROGRAMS OFFERED
- Bachelor of Science in Management & Technology (BSM&T)
- Bachelor of Business Administration (BBA)

SCOPE & OPPORTUNITIES
This program usually covers topics such as accounting and financial management. The program also covers emerging technologies and sustainability. Technology managers keep up with fast-changing technology developments and innovations. They understand products and services and what new ones that will thrive in the market.

Program admission is for students interested in creating and managing production systems that are more efficient. Management scientists perform analysis with computer math models. Translating business problems into analytical problems, developing analytical models, managing big volumes of data, analyzing data for providing solutions across business functional areas, interpreting analytical solutions for management, and communicating analytical results to novice and advanced technical audiences in a business environment.

OUTCOMES
- After graduation students will be able to:
  - Explain the major concepts in the functional areas of accounting, marketing, finance, and technology management.
  - Evaluate the legal, social, and economic environments to manage the performance of individual subordinates.
  - Develop strategies and tactics to manage the performance of individual subordinates.
  - Apply knowledge of business concepts and responsibilities of technology in use.
  - Provide services and/or Start up technology consulting firms.
  - Serve the society with their innovative ideas to manage various technologies and developed products within a diverse environment maintaining ethical standards required for certain technology operation.
  - Promote continuous development of professional knowledge and skills.

THE CREDIT HOUR DISTRIBUTION OF THE COURSES
The Department of Management Technology & Information Sciences follows NBEAC/HEC guidelines for distribution of credit hours between core and elective courses. The Program comprises of 136 credit hours.

BS MANAGEMENT & TECHNOLOGY

PROGRAM LEARNING OUTCOMES
After graduation students will be able to:
1. Explain the major concepts in the functional areas of accounting, marketing, finance, and technology management.
2. Evaluate the legal, social, and economic environments of business.
3. Describe and explain the ethical obligations and responsibilities of technology in use.
4. Apply decision-support tools to business decision making with effective oral and written forms of professional communication.
5. Apply knowledge of business concepts and functions in an integrated manner.
6. Lead individuals and teams in organizational environments to manage the performance of individual subordinates.
SCHEME OF STUDY

SEMESTER 1

<table>
<thead>
<tr>
<th>Sr.#</th>
<th>Course Title</th>
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<tr>
<td>1</td>
<td>Introduction to Business Management</td>
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<td>2</td>
<td>Accounting Principles</td>
<td>3+0</td>
</tr>
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<td>3</td>
<td>Principles of Law</td>
<td>3+0</td>
</tr>
<tr>
<td>4</td>
<td>Statistics</td>
<td>3+0</td>
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<tr>
<td>5</td>
<td>Corporate Finance</td>
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</tr>
<tr>
<td>6</td>
<td>Marketing</td>
<td>3+0</td>
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<tr>
<td>7</td>
<td>Organizational Change</td>
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<td>8</td>
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SEMESTER 2

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<td>3+0</td>
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<tr>
<td>2</td>
<td>Principles of Management</td>
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</tr>
<tr>
<td>3</td>
<td>Principles of Accounting</td>
<td>3+0</td>
</tr>
<tr>
<td>4</td>
<td>Principles of Marketing</td>
<td>3+0</td>
</tr>
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<td>5</td>
<td>Principles of Organizational Change</td>
<td>3+0</td>
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SEMESTER 3

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<tr>
<td>2</td>
<td>Principles of Human Resource</td>
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</tr>
<tr>
<td>3</td>
<td>Principles of Environment</td>
<td>3+0</td>
</tr>
<tr>
<td>4</td>
<td>Principles of Information</td>
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<td>5</td>
<td>Principles of Ethics</td>
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SEMESTER 4

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</tr>
<tr>
<td>2</td>
<td>Principles of Social Science</td>
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</tr>
<tr>
<td>3</td>
<td>Principles of Professional Ethics</td>
<td>3+0</td>
</tr>
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<td>4</td>
<td>Principles of Intellectual Skills</td>
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<td>5</td>
<td>Principles of Business Development</td>
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SEMESTER 5

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</tr>
<tr>
<td>2</td>
<td>Principles of Business Development</td>
<td>3+0</td>
</tr>
<tr>
<td>3</td>
<td>Principles of Professional Skills</td>
<td>3+0</td>
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<tr>
<td>4</td>
<td>Principles of Social Science</td>
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<td>Principles of Behavioral Ethics</td>
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SEMESTER 6

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<td>Principles of Behavioral Ethics</td>
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<td>Principles of Business Development</td>
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SEMESTER 7

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<td>2</td>
<td>Principles of Professional Skills</td>
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<td>Principles of Social Science</td>
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SEMESTER 8

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LENGTH OF DEGREE PROGRAM
Program: BBA Management & Technology
Duration (Minimum): 4 years
Duration (Maximum): 7 years

ELIGIBILITY
The criteria for students seeking admission to the program are as follows:
• 50% marks or above in Intermediate or equivalent examination.
• Minimum score for eligibility is 50% in the ZU lent examination.

FEE STRUCTURE
Fee/credit hour + Exam fee: Rs. 4,500/-
No. of credit hours: 136
Total Program fee: Rs. 652,000/-
Processing fee: Rs. 5,000/-

SCOPES & OPPORTUNITIES
The Bachelor of Business Administration (B.B.A) program is planned for individuals who want to mix business theory, practical knowledge and professional skills in preparation for careers as business leaders. The BBA program indicates a strong professional business education within a broad background and is designed to mix business theory with practical knowledge and professional skills, to prepare tomorrow’s business leaders.

PROGRAM EDUCATIONAL OUTCOMES
POE1: To produce graduates with strong foundation in the areas like Mathematics, Statistics, Economics and functional Management in order to develop managerial qualities.
POE2: To produce graduates with the ability to think creatively and critically, analyzing problems quantitatively, and using information technology to solve business issues.
POE3: To produce graduates with understanding of social and ethical issues that is a concern to the whole business community.
POE4: To produce graduates with strong entrepreneurial skills for creating and managing innovations, new business development and identifying high-growth potential entity.

PROGRAM LEARNING OUTCOMES
ZUPES1: Bachelor of Business Administration program prepares students to attain the educational objectives by ensuring that students demonstrate achievement of the following learning outcomes:
• PLO1: Communication: An ability to communicate effectively in the context of business with strong presentation skills.
• PLO2: Ethics: An ability to identify ethical and social problems that arise in the business environment.

THE CREDIT HOUR DISTRIBUTION OF THE COURSES
The Department of Management & Information Sciences follows NBAC/HEC guidelines for distribution of credit hours between core and elective courses. The program comprises 136 credit hours.
## Scheme of Study

### Semester 1

<table>
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<td>BA-110 Technical Writing &amp; Professional Speech</td>
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<td>BA-206 Fundamentals of Marketing</td>
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<td>BA-208 Business Finance</td>
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<td>BA-303 Marketing Management</td>
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<td>BA-305 Business Research Methods</td>
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<td></td>
<td>BA-312 Total Quality Management</td>
<td>3+0</td>
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<tr>
<td></td>
<td>BA-306 Human Resource Management</td>
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<td>BA-308 Business Ethics</td>
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### Semester 7

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<tr>
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<td>BA-401 Organizational Behavior</td>
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<tr>
<td></td>
<td>BA-403 Operations/Production Management</td>
<td>3+0</td>
</tr>
<tr>
<td></td>
<td>BA-405 Global/International Business</td>
<td>3+0</td>
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### Semester 8

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<td>BA-512 Specialization in Finance</td>
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<tr>
<td></td>
<td>BA-510 Specialization in Marketing</td>
<td>3+0</td>
</tr>
<tr>
<td></td>
<td>BA-508 Specialization in Information Technology</td>
<td>3+0</td>
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<tr>
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</table>

## Length of Degree Program
- Minimum 4 years and maximum 7 years (135 Credit Hours)

## Eligibility
- The criteria for students seeking admission to the program are as follows:
  - 50% marks or above in Intermediate or equivalent examination.
  - Minimum score for eligibility is 50% in the ZU Admissions Test.
- Candidates who have completed 12 years of education and obtained degrees other than Matriculation (SCC) or Intermediate (HSSC) are required to obtain an equivalence certificate from the Inter Board Committee of Chairman (IBCC).

## Fee Structure
- Fees: Rs. 4500/- per credit hour + Exam fee
  - No. of credit hours: 136
  - Total Semester fee: Rs. 5000/-(refundable)
  - Total Program fee: Rs. 652,000/-(Processing fee: Rs. 5,000/-)

- Admission fee: Rs. 25,000/-
- Security Deposit: Rs. 25,000/-
- Student activity fee: Rs. 2,000/-

- Note: Any additional taxes imposed by the government will be the liability of the students/parents/guardian.
- The University reserves the right to increase the fees if required according to the recommendations of the Governing Body.
- At the time of admission, selected candidates will be required to deposit fee. Therefore, monthly or semester fee will be deposited by students within two weeks of commencement of every semester in advance according to the official notification on the notice board. 2% surcharge per month will be levied on outstanding fees after the due date.
- The students claiming exemptions from any course or courses will be required to pay exemption fee Rs. 2,500/- per subject in the beginning of the semester.
- Fees once deposited are not refundable, except security deposits, for any reason whatsoever.
### FACULTY MEMBERS

#### PROFESSOR

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Institution/Date</th>
</tr>
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</table>
INTRODUCTION
Pharmacy, along with medicine and nursing forms the backbone of our health care system. We cannot afford to be left behind other developing nations in providing quality drugs to our masses and professional manpower to our health care institutions. We have to cater to the needs of this system by producing well qualified, professionally trained and highly competent pharmacists to perform the specialised tasks in their specific areas of activity, such as drug design, synthesis, manufacturing, quality assurance, marketing and supply system, procurement, storage, distribution and use of drugs in industry, hospital setting or in community practice. In all advanced health care systems, the support of a clinical pharmacist, who is a drug therapy consultant and drug information specialist, is considered vital. Realising the importance of Pharmacy education, Ziauddin University started its 5-year Doctor of Pharmacy (Pharm.D) programme in January 2005. The Pharmacy institution of Ziauddin University is following the curriculum approved by Higher Education Commission (HEC) & Pharmacy Council of Pakistan (PCP) based on the semester examination system. This is an accredited and recognised programme of Pharmacy Council of Pakistan. The programme provides students with care, knowledge, skills, abilities, attitudes and values that are necessary to the provision of Pharmacoeconomic care. The professional courses in the Pharm.D curriculum consists of didactic material, laboratory courses, and practical experience in patient care environment.

AIM
Ziauddin University believes in “professionalism”. The key values include acting in a patient’s interest, responsiveness to the health need of society, maintaining the highest standards of excellence in the practice of Pharmacy and in the generation and dissemination of knowledge. In addition to knowledge and skills, pharmacists should possess psychosocial and humanistic qualities such as caring, empathy, humility and compassion, as well as social responsibility and sensitivity to people’s culture and beliefs. We believe that all these qualities are required to ensure safe and effective medication use which can be achieved through the well designed and sound education program.

SCOPE
Today, a Pharmacist’s attention is directed towards the patient, his/her environment, and his/her state of general well-being. The profession has undergone a transformation whereby both practice and teaching of this area has been placed on more quantitative, rational and scientific bases, so much so that the Drug Oriented Pharmacy has now allotted itself to Patient Oriented Pharmacy in United States and Canadian Universities. Accordingly, Pharmacy Council of Pakistan (a subsidiary body of Ministry of Health, Government of Pakistan) which is regulating Pharmacy education in Pakistan, felt the global changing trends and therefore adopted a 5-year Doctor of Pharmacy (Pharm.D) programme instead of 4-year B.Pharm programme in 2004 all over Pakistan.

WHAT’S NEW FOR 2018
Job Fair
Ziauddin Faculty of Pharmacy has been actively engaged in organizing and facilitating its graduates through campus job fair in the coming year a job fair will be conducted, inviting leading Pharmaceutical and Health care individuals to ensure better exposure for graduates & under graduates.

INTERNATIONAL CONFERENCE-2019
Faculty of Pharmacy is planning to host another International Pharmacy Conference in February 2019. The theme of the conference would be the subject of molecular medicine and nanotechnology. This conference will comprise of several scientific meetings of international experts on novel areas of Pharmaceutical & academic sector. Scientists and scholars of international repute will present their research and share their experience in an articulated forum. The conference proceedings will be published in the form of an abstract book.

SEMINAR ON PHARMACOVIGILANCE AT NATIONAL LEVEL
Ziauddin Faculty of Pharmacy is planning to organize a national level seminar on Pharmacovigilance in collaboration with WHO & USP United States Pharmacopeia.
The Pharm.D programme at Ziauddin Faculty of Pharmacy is to produce pharmacists who have the abilities and skills which are necessary to achieve outcomes related to:

- Providing Pharmaceutical care to patients;
- Developing and managing medication distribution and control systems;
- Monitoring drug response in patients and adjusting dosage regimens to produce the safest, most beneficial results in therapy.
- Designing the pharmacy;
- Promoting public health;
- Providing drug information and education;
- Providing technical aid to Pharmaceutical industry and solving problems pertinent to the manufacturing of medicines;
- Reviewing products evaluated for formulary consideration;
- Evaluating policies, procedure, protocols and clinical pathways to ensure safe use of medications;
- Analysing quality assurance activities to ensure that improvements are implemented to produce positive patient outcomes.

**ELIGIBILITY CRITERIA**

The candidate should have passed the Intermediate Science (HSC) Examination (Medical Biology Group) securing at least 60% marks in aggregate from the Board of Higher Secondary Education in Pakistan or any other examination of a Foreign University which in scope and standard is found equivalent to the H.Sc. Examination (Medical Group), Pakistan.

**CLINICAL TRAINING**

Students of Pharm.D are lucky to be a part of an institute with large set-up of hospitals & clinical practice. To make best use of this opportunity, we have given much emphasis on the clinical side of the profession which is the very soul of Pharm.D programme. This is a requirement of the curriculum as approved by Pharmacy Council of Pakistan. This training also provides a better chance of learning and practicing the skills in these fields than elsewhere. In Pharmacy institution in the country there is no such an ideal situation for the training as Ziauddin University has.

This training enables these future Pharmacists to play a vital role in the improvement of quality of healthcare in our society. This will bring a unique difference between its graduates and graduates of other Pharmacy institutions of the country. It will not be out of place to mention that Pharm.D is a patient-oriented programme rather than product oriented four-year B.Pharm degree of the past. Students of 4th & 5th Professionals complete this training in Pharmaceutical service centres of Ziauddin Hospitals. In patient pharmacy, emergency room pharmacy, ambulatory dispensing area, bulk store, out-patient pharmacy, satellite pharmacy and different wards like Medical ICU, Cardiac care unit, Neonatal care unit, cardiac ward, Neuro, Psychiatry ward, Gastroenterology ward, Gynecology ward, Paediatric ward, Dialysis centre. This training is conducted at all three sites of Dr. Ziauddin Hospital i.e. North Nazimabad, Clifton & Kemari (KDJB).

The main objectives of clinical training are:

- To develop students' communication skills for effective interaction with patients and with practitioners of other health professions.
- To help students develop a patient awareness in the practice of Pharmacy.
- To enable students to integrate the knowledge acquired in course work prior to clinical exposure, and to apply it to the solution of real problems, and to help students become more aware of the general methods of diagnosis and patient care specifically related to drug therapy.

**COMMUNITY PHARMACY TRAINING AT ZIAUDDIN**

Community pharmacy training programmes focused on advancing skills in direct patient care, patient care service development and practice management. This is the unique training program offered by Ziauddin Faculty of Pharmacy, not available anywhere in Pakistan. Following are the main objectives of our community training:

- To promote professionally competent pharmacists.
- To serve the community as a drug specialist.
- To enable the students to have sound knowledge and practical exposure to:
  1. Community Pharmacy and its organisation.
  2. Epidemiology and its control.
  3. To educate and counsel the patient.
  4. To control drug abuse and misuse.
  5. To control drug distribution.
  6. To develop a better understanding of principles of health promotion and patient care programmes such as immunisation in community.

**PHARMACY RESIDENCY PROGRAMME**

In order to expand graduates' professional skills and to develop a patient oriented attitude, one year Pharmacy Practice Residency programme has been started in clinical and hospital pharmacy. This is a one year training programme for the graduate of Ziauddin Faculty of Pharmacy. The programme aims to provide professional experience in different fields of pharmacy practice such as inpatient pharmacy, outpatient pharmacy, oncology pharmacy, nutrition pharmacy etc. At the end of this programme, certificates are awarded to graduates who successfully complete the programme. During the residency period a reasonable stipend is also given to the trainees. This is the only institution of Pakistan which offers such specialised training programme based on Pharmaceutical care system.

**INDEPENDENT CLINICAL PHARMACY ROUNDS**

The objective of this programme is to ensure rational use of medicines in Dr. Ziauddin Hospital. It allows the clinical pharmacy faculty to specialise in clinical pharmacy practice and developing clinical skills such as patient profile review, drug information, patient medication history and discharge patient counselling.

**EXTRACURRICULAR ACTIVITIES**

Students' Activities

Students of Pharmacy always remain at the forefront in organising activities of academic & non academic nature. Recently, the students of final year organised a sports & talent show which involved the participation of students from first to fifth year. We also have sports facilities for the students which include the following inter and intra departmental games like:

- Cricket Matches
- Foot Ball Matches
- Table Tennis
- Badminton etc.

**STUDENTS’ ADVISOR**

The role of student advisor is to:

- Provide academic progress support for student.
- Help the students with programme planning course selections and goal achievement.
- Assist students in development of functional educational plans.

**LEARNING AND TEACHING STRATEGIES**

The following learning methods/strategies are used to promote better understanding:

- PBL (Problem Based Learning)
- Lectures
- Practical
- Assignments
- Presentations / Seminars
- Field visits

 (**Clinical Training / Pharmaceutical Industries**)

**SELF DIRECTED STUDY**

Students may achieve objectives by assuming responsibilities of their own learning. How? By sharing and discussing with peers, working individually.
udly, seeking information from Learning Resource Centre (LRC)/Library, inter and intranet, teachers and experienced persons within the faculty. Students can also make presentations and assignments and discuss or learn about the upcoming topics through the study mentioned by the teachers in the schedule. This is possible by utilizing scheduled self-study period in the faculty.

INDUSTRIAL VISITS

Industrial tours to different pharmaceutical industries are arranged frequently to aware the students with basic practices of manufacturing, quality control and quality assurance of medicines. These tours enable the students to relate their theoretical knowledge with different unit operations in dosage forms manufacturing and different QC and QA techniques to maximize the product quality.

SEMESTER SUMMARY

FIRST PROFESSIONAL

Pharmaceutical Organic Chemistry: Organic chemistry is more than simply the study of carbon and hydrogen; it is the study of chemicals in living organisms. Organic substances are pretty crucial in our lives. Most of our drugs are organic compounds. The course is designed to illustrate the importance of organic compounds aromatic, cyclic, heterocyclic, polycyclic aromatic through discussion of their nomenclature, synthesis, and reaction with a concentration on their medical and pharmaceutical importance.

English: English is one of the compulsory subjects which is taught in first two semesters. The focus is on all four language skills i.e. reading, writing, speaking and listening. In the first semester, students study the basics of the four skills, along with the techniques of grammar while, in the second semester the focus is shifted to academic reading and writing according to the professional and academic needs of Pharm.D program.

Physiology: This course represents the core of basic health sciences towards understanding Pharmacological processes, mechanism of drug action and applying rationale pharmacotherapeutic decision-making in the treatment of diseases.

Anatomy and Histology: Anatomy is the body’s own system i.e. gross anatomy including CNS, CVS, reproductive, tissue, urinary, respiratory, cardiac etc. and Histology is the study of cellular system. The objective of this course is to ensure that students achieve an understanding of structural biology of the major body systems relevant to Pharmacy and of the anatomical and histological features of common diseases amenable to drug therapy.

Biochemistry: This course helps the student to understand the drug molecules and their effects by many biochemical reactions in presence of enzymes. This helps to avoid drugs that cause poor metabolism or those with excessive side effects from being prescribed or dispensed to the patients.

Physical Pharmacy: Physical Pharmacy is the basic course related to physical aspects of pharmacy where the student applies his/her knowledge of physics, chemistry and biology obtained during their intermediate studies to the development of a drug with a highly accessible approach. This course will help students comprehend and apply the principles of Physical Pharmacy in clinical practice.

SECOND PROFESSIONAL

Mathematics: Mathematics is an important tool in most scientific courses. This course focuses on solving of linear equations, progression, logarithmic, analytical geometry, differential and integral calculus.

Statistics: This course focuses on application of statistics in biological and Pharmaceutical Science. It is an introductory course covering presentation of data, graphing, measure of central tendency and dispersion, probability distributions (Binomial, Poisson, Student “t”, “z” and “F”), hypothesis testing, analysis of variance, regression, and correlation.

Pharmaceutical Preparation: The course deals with formulation aspect and quality control test and other activities of classical and modern dosage form (palerclial preparation, solution, syrup, elixir, sprits, gel, magma, tablets, capsule, powder, emulsion, and suspension).

Pharmacognosy: This is a course in which students are taught about the history of pharmaceuticals and drugs of different medical system, importance origins, their adulteration, evaluation, classification, importance of plant growth regulation and enzymes, and also get knowledge about poisonous plants and allergy producing plants.

Pharmaceutical Microbiology: Pharmaceutical Microbiology deals with the primary knowledge of Micro-organisms, Immunology and Hypersensitivity. Drug safety is a major focus of Pharmaceutical Microbiology. Pathogenic bacteria, yeasts, molds and toxins produced by micro-organisms are all possible contaminants of medicines – although stringent regulated processes are in place to ensure they are minimised.

Pharmacology and Therapeutics: Pharmacology is the study of how the drug does in the body to produce its effect and what the body does to the drug to get rid of it. This course focuses on basic concepts of pharmacology and drugs acting on autonomic nervous system and drugs acting on gastrointestinal tract.

Pakistan Studies: This subject develops the vision of historical perspective, government, politics, contemporary Pakistan and ideological background. It deals with the study of governance, national development, issues arising in the modern age and posing challenges to Pakistan.

Islamiat: This course is designed to equip students with a comprehensive knowledge in the major areas of the Quran o Sunnah and Fiq e I-Man, generally applied in Islamic disciplines. It offers students appropriate theoretical and practical methods of covering the classical and contemporary subject matters as well as issues related to modern sociological and scientific studies.

THIRD PROFESSIONAL

Dispensing Pharmacy: Dispensing Pharmacy plays a significant role in the field of Pharmacy, concerned with preparation and supply of medicines. It gives confidence to Pharmacist for his ability in decision-making with pharmacy decisions involved in Pharma-cetical Practice.

Pathology: This subject enables students to establish a liaison between Pharmacological and Clinical Practice. It deals with clinical and diagnostic aspects of disease and helps students understand the mechanism and course of disease.

Pharmacognosy: It is based on the introduction and use of spectrophotometric and chromatographic techniques for the identification of natural products. It also deals with the chemistry and pharmaco- dynamics of primary and secondary metabolites such as carbohydrate, alkaloids, glycosides, tannins, resins, fixed and volatile oils etc. from plants. The course also comprises the study of natural toxins, cosmeceutical and neurtaceutical agents from nature. This course deals with the clinical aspects of herbs with respect to commonly used herbal drugs such as Digitalis purpurea, Artemisia absinthium.

Pharmacology and Therapeutics: Pharmacology and Therapeutics comprises drug related actions (Pharmacokinetics) to the therapy. The subject focuses on aspects of Neuro-Pharmacology, antinociceptive and immune modulators.

Computer & Its Applications: It is related to basic knowledge about computer hardware and software, MS Office, internet and its usage, web designing etc.

Community Pharmacy: It deals with people in the community with certain responsibilities like drug compounding, patient counselling, drug dispensing and packaging of prescribed drugs to the patients with care.

FOURTH PROFESSIONAL

Clinical Pharmacy: Clinical Pharmacy is a novel concept of practice based learning aimed at augmenting positive patient outcomes in health care settings.

Hospital Pharmacy: Hospital Pharmacy course defines the direction of a professionally competent, legally qualified pharmacist and services for inpatients, outpatients and ambulatory patients of hospital.

Pharmaceutical Industrial Pharmacy: This course deals with the different types of unit operations carried out in industries and safety operation to ensure the proper execution of different dosage forms manufacturing.

Pharmaceutical Quality Management: This course deals with the Quality operations including GMP, GLP, GAP, GMP and validation topics. It also deals with the quality control aspects of various dosage forms including biological testing.

Biopharmaceutics & Pharmacokinetics: Biophar-maceutics deals with the various physicochemical properties and physiological factors which influence the bioavailability of drugs. Pharma-cokinetics discusses the last me as a function or time and uses mathematical modelling to predict estimated course of drug movement in therapy.

FIFTH PROFESSIONAL

Pharmaceutical Technology: This course includes different Pharmacological techniques used in industry for manufacturing different dosage forms i.e. modified release, immediate release and biotechnology.

Medicinal Chemistry: Medicinal chemistry brings synthesis and development of Pharmaceutically useful substances work in the Department of Medicinal Chemistry. This course aims at understanding the transformation of new chemical entities into potential therapies as
well as the study of existing drugs, their Biological properties, and their quantitative structure activity relationships. Medicinal chemistry is uniquely positioned to leverage recent scientific advances – in particular, the mapping of the human genome into the discovery and development of novel drugs. 

Clinical Pharmacy: Clinical Pharmacy is the area of pharmacy concerned with the science and practice of rational and evidence based medication use.

Forensic Pharmacy: This course comprises the Laws & Rules & Regulations of Pharmacy Act and also discusses the restriction & penalties as per drug law.

Pharmaceutical Management & Marketing: The course of Pharmaceutical Management is designed to teach students the requisite skills needed to perform managerial functions in a community and institutional Pharmacy. It includes planning and integrating professional services, budgeting, inventory control and HP management. In Pharmaceutical Marketing student will get to know about different aspects of Pharmaceutical Marketing and its application in professional field of Pharmacy.

**STUDENT ASSESSMENT METHODS**
- Objective structured clinical
- Practical examinations / practice skills
- Student log book or written reports are evaluated.
- Group or individual presentations are evaluated
- Oral examinations
- Short answer written papers
- MCQs

**REGULAR SEMESTER EXAMINATION**
It consists of the following:
- Continuous Assessment Tests: Students are continuously assessed during semester by above methods. It is conducted by Examination Cell. Faculty of Pharmacy, this carries 40% weightage for each course.
- Final Semester Examination: It is conducted by the Examination Department of Ziauddin University and held at the end of each semester. It carries 60% weightage of each course. Promotion to next class is based on passing all the courses (i.e. 100 % of the credit hour) scheduled for that year.

**SEMESTER REST EXAMINATION**
It is conducted by the Examination Department of Ziauddin University. Rest Examination of both the semesters will be held at the end of the academic year (after declaration of 2nd semester result).

The weightage of Continuous Assessment of any course shall not be counted towards Rest Examination and students must obtain minimum 50% marks to clear the course.

**ELIGIBILITY FOR SEMESTER EXAMINATION**
- If a student fails in any course in the semester, s/he can appear in the rest exam.
- 2. Students with 75% attendance will be eligible to appear in rest examination after submitting assignments to concern course incharge(s) (2 assignments per 5% shortage of attendance for each course).

**ELIGIBILITY FOR REST EXAMINATION**
1. If a student fails in any course in the semester, s/he can appear in the rest exam.
2. Students with 75% attendance will be eligible to appear in rest examination after submitting assignments to concern course incharge(s) (2 assignments per 5% shortage of attendance for each course).

**REQUIREMENT FOR THE AWARD OF PHARM.D**
- A student must have passed all prescribed courses of Pharm.D degree.
- A student must have obtained a minimum 2.45 Cumulative Grade Point Ratio (CGPR).

**GOLD MEDAL**
At the time of convocation a Gold Medal, “Sir Ziauddin Gold Medal” is awarded by Ziauddin University to a student achieving highest CGPR but not less than 3.4 CGPR in Pharm.D.

**ADMISSION POLICY**
The programme is open to all individuals who meet the selection criteria. All candidates are selected on merit according to the following criteria:
- Examination / Interview
- Weightage
- H.S.C.
- 50%
- Entry Test
- 30%
- Interview
- 20%
- Note: It is the responsibility of the applicant to submit the application according to instructions given with the application form.

**CAREER OPPORTUNITIES**
Pharmacy offers a challenging, satisfying and rewarding career to the individual whose interest lies in health services, business, scientific research, university teaching and hospital practice. Pharmacists advise their patients, physicians, and other health practitioners on the selection, dosages, interactions, and side effects of medications, as well as monitor the health and progress of patients to ensure that they are using their medications safely and effectively.

Areas, where pharmacists required are:
- Hospital Pharmacy & Other Institutional Settings.
- Clinical Pharmacy
- The Pharmaceutical Industry
- Community Pharmacy
- Retail Pharmacy
- Radio Pharmacy
- Pharmacy in Armed Forces
- Pharmacy Low Practice
- Pharmaceutical Marketing
- Drug control administration
- Research & Development
- ORAP (Drug Regulatory Authority of Pakistan)

Many opportunities for pharmacist with Pharm.D degree are available in U.S.A, Canada, Australia & Middle East.
M.Phil and Ph.D Programme

This programme is designed to prepare students for teaching and research careers in academia, the pharmaceutical industry, hospitals and research institutes. Students are expected to select an area of specialisation from one of the pharmaceutical science disciplines including Pharmacology, Pharmaceutical Chemistry, Pharmacognosy, Pharmaceutics and Pharmacy Practice.

The M.Phil and Ph.D programme consists of course work, presentations, research and publications. The objective of the programme is to provide a thorough understanding of subject. In addition, students can choose from a variety of elective courses that allow them to gain knowledge and skills which may be used for a career of independent research and teaching in pharmacy for academic institutions, industrial laboratories, hospital or government research and administrative agencies.

The University places emphasis on excellence in research, making every effort to ensure that students are able to commit as much time as possible to their research projects, which allows them to earn the M.Phil or Ph.D degree in a timely fashion.

- **MISSION STATEMENT**
  The mission of M.Phil/PhD programme at Faculty of Pharmacy is to produce high calibre postgraduate students trained to meet their respective knowledge, enlighten them to foster innovation and promote health, disease prevention within the healthcare system and therapeutic use of medicinal treatment of disease and the action of remedial agents.

- **DISCIPLINES OFFERED**
  - Pharmacology
  - Pharmaceutical Chemistry
  - Pharmaceutics
  - Pharmacy Practice
  - Pharmacognosy

- **LEARNING AND TEACHING STRATEGIES**
  - Course work in the respective field of specialisation will enable students to comprehend central issues or problems in the field.
  - Discussion on the sources of literature will enable students to develop the skills to select, read and survey the recent developments in any particular area of research.
  - Assignments including term papers on various research topics to be prepared by students during the course work.
  - Participation in the journal club on weekly basis.
  - Presentations of research papers at journal club.
  - Preparation and presentation of synopsis for the thesis.
  - Carrying out research projects in participation with other students as a part of assignments.
  - Leading undergraduate students in research as a project or getting them involved in their own research projects.
  - Presentations of posters in conferences and symposia.
  - Presentations in symposia and conferences of research work.
  - Writing research papers and publications in national and international journals.

- **SEMESTER SUMMARY**
  - **Pharmacology:** The students will learn the advanced level the immunity, infection, virology, microbial control and antimicrobial agent. The application of Pharmacokinetics and Pharmaceutical Biotechnology in the field of Pharmacy is taught along with the advanced level of the physical & biological principles which apply to the design, development and evaluation of drug delivery system.
  - **Pharmaceutics:** The subject deals with the natural product’s bioavailability pathways in order to enhance the production of beneficial products from natural origin. It also includes the methods for separation and isolation of bioactive compounds as well as their analysis.
  - **Pharmaceutical Chemistry:** This course deals with the chemistry of medicines, drug designing and discovery, drug synthesis by different methods. It also deals with the method development for analysis of drugs and drug related compounds by using different modern instrument and technology.

- **PHARMACOLOGY**
  - This subject deals with advance Pharmacokinetics and Pharmacodynamics knowledge of drugs, therapeutic study of cardiovascular system, therapeutic modalities to treat cancer and management of antimicrobial therapy, study of common toxicity syndromes and standard protocols and pharmacology of derived metabolites.

- **PHARMACY PRACTICE**
  - This subject deals with patient care that optimises the use of medication and promotes health, disease prevention within the healthcare system and therapeutic use of medication. In broad sense serving and caring patients in a comprehensive manner concerned with treatment of disease and the action of remedial agents.

- **PHARMACEUTICAL BIOSTATISTICS**
  - This course focuses on practical areas of statistics applied to pharmacy and pharmaceutical sciences Sample and Population, Test of Hypothesis and significance, Test involving binomial and normal distribution, Student ‘t’, ‘Z’ and ‘F’ distribution, Analysis of variance, Experimental Designs, Basic Principles, completely randomized (CR- designs), Randomized complete block designs, Latin square etc., Correlation/ regression Analysis, Introduction of SPSS.

- **Research Methodology & Clinical Trials:** This course will develop the skills to select, read and survey the recent developments in any particular area of research.

- **Computer Application in Research:** This course enables research scholars to analyse data and interpret the outputs of various software of research methodology. This also helps them to design research models and simulators.

- **Research Ethics:** This course will help the students to know about various features while doing research because research ethics will cover different areas of fundamental research.

- **STUDENT ASSESSMENT FOR PH.D REGULAR SEMESTER EXAMINATION**
  - It consists of the following:
    - Continuous Assessment consists of CAT – I & II, Presentations. Assignments are two for each semester with weightage of 40% will be conducted by Examination Cell of Faculty of Pharmacy.

  - **SEMINAR RESIT EXAMINATION**
    - It is conducted by Examination Department, Ziauddin University.

  - **Final Semester Examination:**
    - It is conducted by Examination Department, Ziauddin University.

  - **Resit examination of both the semesters will be held at the end of the academic year.

  - **The weightage of Continuous Assessment of any course shall not be counted towards Resit Examination.**

- **MARKING SYSTEM/PASS LEVEL**
  - Each candidate will take 04 courses per semester.
  - Each course of a semester carries 100 marks and 03 credit hours.
  - The minimum passing marks of each course are 60%

- **STUDENT ASSESSMENT FOR M.Phil REGULAR SEMESTER EXAMINATION**
  - It consists of the following:
    - Continuous Assessment consists of CAT – I & II, Presentations. Assignments are two for each semester with weightage of 40% will be conducted by Examination Cell of Faculty of Pharmacy.

  - **SEMINAR RESIT EXAMINATION**
    - It is conducted by Examination Department, Ziauddin University.

  - **Final Semester Examination:**
    - It is conducted by Examination Department, Ziauddin University.

  - **Resit examination of both the semesters will be held at the end of the academic year.

  - **The weightage of Continuous Assessment of any course shall not be counted towards Resit Examination.**

- **MARKING SYSTEM/PASS LEVEL**
  - Each candidate will take 03 courses per semester.
  - Each course of a semester carries 100 marks and 03 credit hours.
  - The minimum passing marks of each course are 60%

- **ADMISSION POLICY**
  - For M.Phil Programme
    - The programme is open to all individuals who meet the selection criteria. All candidates are selected on merit according to the following criteria:
      - Candidates repeating or grade improving have to score fresh continuous assessment marks in the failed course(s) of the course(s) is / are being improved.
      - Continuous Assessment consists of CAT – I & II, Presentations. Assignments are two for each semester with weightage of 40% will be conducted by Examination Cell of Faculty of Pharmacy.
CAREER OPPORTUNITIES
• A postgraduate qualification can enhance the career and earning prospects, and set apart from other students who only hold an undergraduate degree.
• Postgraduate studies will enable a student to operate effectively at a senior level and go on to successful careers in business, industry and academia.
• Postgraduate study can also equip a student with the knowledge and skills, anyone need to move into a different profession.

Areas where Postgraduate students can serve are:
• Hospital Pharmacy Services
• Clinical Pharmacy Practice including TDM
• Chain Pharmacies and rental outlets (special services)
• R&D sector / firms involved in Drug Designing, Pharmaceutical Product Development and Medicinal related researches like Clinical trials, Pharmacovigilance, Pharmacoanalytics / Pharmacodynamics studies.
• Individual Entrepreneurs like consultants / advisors (Training / Workshops / Consultancy / Publishing etc)
• Pharmaceutical Industrial sector
• Regulatory Bodies / Authorities (Drug Regulatory Authority of Pakistan, MOH, Drug Control Administration)

Note: Any additional taxes imposed by the government will be the liability of the students/parents/guardian.

The University reserves the right to increase the fees if required according to the recommendation of the Governing Body.

Advance fees to be paid semester-wise. All dues need to be cleared within two weeks of commencement of the academic year. 2% surcharge per month will be levied on outstanding fees after the due date.

STUDENT ASSESSMENT FOR PH.D

Examination / Interview Weightage
Entry Test 50% Interview 30% Academic Record 20%

For Ph. D Programme
As per Admission policy of HEC

SELECTION CRITERIA
For M.Phil Programme
Pharm.D degree from any HEC recognized university. Candidates must have passed NTS GAT exam or will need to pass NTS GAT exam within six months of registration.

For Ph. D Programme
M.Phil / M.S / Equivalent Degree in any field of Pharmacy from any HEC recognised university with minimum CGPA 3.0 (out of 4.0 in semester system) or First Division (6 annual system) and must meet all admission criteria of HEC.

FEE STRUCTURE
Admission Fees: Rs. 25,000/-. Tuition Fees: Rs. 140,185/- [1st Yr] Examination Fees: Rs. 11,500/- [1st Yr]

Note: Any additional taxes imposed by the government will be the liability of the students/parents/guardian.

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CAREER OPPORTUNITIES
• A postgraduate qualification can enhance the career and earning prospects, and set apart from other students who only hold an undergraduate degree.
• Postgraduate studies will enable a student to operate effectively at a senior level and go on to successful careers in business, industry and academia.
• Postgraduate study can also equip a student with the knowledge and skills, anyone need to move into a different profession.

Areas where Postgraduate students can serve are:
• Hospital Pharmacy Services
• Clinical Pharmacy Practice including TDM
• Chain Pharmacies and rental outlets (special services)
• R&D sector / firms involved in Drug Designing, Pharmaceutical Product Development and Medicinal related researches like Clinical trials, Pharmacovigilance, Pharmacoanalytics / Pharmacodynamics studies.
• Individual Entrepreneurs like consultants / advisors (Training / Workshops / Consultancy / Publishing etc)
• Pharmaceutical Industrial sector
• Regulatory Bodies / Authorities (Drug Regulatory Authority of Pakistan, MOH, Drug Control Administration)
### DEPARTMENT OF PHARMACOLOGY

**ASSOCIATE PROFESSOR & HEAD**

MR. SADIQ BRAR

B. PHARM., M. PHARM., PH.D. (K.U), R.PH.

**ASSOCIATE PROFESSORS**

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DR. NEELAM MALICK

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**SENIOR LECTURERS**

MS. ZEB-UN-NISA

B. PHARM., M. PHIL. (K.U), R.PH.

**LECTURERS**

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B. PHARM. (H.U), PHARM.D (F.U.U.A.S.T), R.PH.

DR. RASHEEDA FATIMA

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### DEPARTMENT OF PHARMACEUTICAL CHEMISTRY

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**ASSOCIATE PROFESSOR**

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MS. SHEHLA SIDDIQUI

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DR. SARA SHAHNAZ

PHARM.D (S.U), R.PH.

DR. MUHAMMAD IbraHiM SIAL

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### COLLEGE OF MEDIA SCIENCES

**DEAN FACULTY OF PHARMACY**

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**PROFESSOR & ADVISOR TO CHANCELLOR**

DR. ANWAR EJAZ BEG

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DR. SHEEBA UROOJ

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PHARM.D (Z.U), R.PH.

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**LECTURERS**

DR. NAJEEB KHATIAN

PHARM.D, M.PHIL. (Z.U), R.PH.

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B. PHARM., PH.D. (K.U), R.PH.

**SENIOR LECTURER**

DR. SARAH HAROON

PHARM.D (Z.U), MBA (IBA), R.PH.

**LECTURER**

DR. MEHREEN QADRI

PHARM.D (Z.U), R.PH.

DR. NAYEL SYED

PHARM.D (Z.U), R.PH.

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PHARM.D (F.U.U.A.S.T), R.PH.
INTRODUCTION
The college of Media Sciences (ZCOMS) Ziauddin University directly caters to the growing needs of Pakistan’s media industry. As the industry continues to grow exponentially, there is a surge in demand for qualified media professionals with academic and practical knowledge requisite of the industry.

ZCOMS is unique in that it has a state of the art TV channel, a radio studio, a newspaper and a digital media company all located on site where students can apply their in-class theory and gain practical experience during their four years, well before starting their careers.

The undergraduate academic program covers a variety of liberal arts and technically-oriented subjects including theoretical, analytical, and practical application approaches to communication process and media. At the end of the four-year program, the graduates are equipped with necessary technical and professional orientation to exceed the qualification for most jobs offered to undergraduate students in media institutions.

This college has been conceived with a vision to bridge the gap between academia and practice. The crux of ZCOMS program design is parallel application, be it in print, radio, TV, or new media and learning technologies. ZCOMS is emerging as a premier media institute in Pakistan.

ZCOMS draws its strength from its in-house TV channel "NNOW", on-site radio "FM 98.2", English daily newspaper The National Courier and Digital Agency "East River".

Our Mission
Our mission is to instill the young mind with curiosities and creative ideas; with a distinct sense of understanding of media, and the courage to act on its beliefs. We stress the absolute development of each individual professionally, morally, intellectually and socially. Through the curricula we hope to push the minds of students beyond the class-
COMMUNICATION & DESIGN
This program teaches students how to translate communication ideas into concepts with the help of visuals to attract attention, interest and sell the idea. It's a multidisciplinary field that combines marketing, advertising and design. Courses on video production, art, illustration, typography and digital image manipulation. The students will be trained to create meaningful messages with compelling images for various mediums. The program enhances the overall communicative and visual skills of the students.

OUR VISION
To be the premier college for Media Sciences and impart quality education in Journalism, Communication, Design and Film & TV. We have to prepare our students to not only be creative, but work towards creating a better and tolerant world.

CORE VALUES
As a member of the ZCOMS community in particular and Ziauddin University at large we lay great emphasis that our students should:
- Always strive for excellence
- Open to new learning
- Be tolerant
- Be ethical
- Open to critique
- Appreciate Diversity
- Have respect for the environment and work towards a better world
- Be humble

PROGRAMMES OFFERED
The undergraduate BS program covers a variety of liberal arts and technically-oriented subjects. It covers theoretical, historical, analytical, critical, and performance approaches to communication processes and media. At the end of four years, the graduates are equipped with necessary technical and professional orientation to qualify for jobs in business or institutions that desire effective communicators, as well as the background needed to pursue further education in communication or related fields. The institute is conceived with a vision to bridge in the gap between academics and practice. The core of ZCOMS program is parallel application, be it in print, radio, TV or digital media and learning technologies. Given the kind of hands-on experience, ZCOMS is set to emerge as a premier communication, media and journalism institute in Pakistan.

ROOM AND TAP INTO UNCHARTED WATERS: WORKING WITH FRESH AND INNOVATIVE IDEAS.
Through interaction with various media professionals we hope to expose our students to new ideas and thought processes, by which we hope that they will use this to bring about creative solutions to all spheres of life, whether professional or personal. We hope to have graduates who use their technical skills and professional knowledge to build a better tomorrow.

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CAREER OPPORTUNITIES
The industry offers vast creative pathways for the young graduates to explore from a variety of options available. They can choose to become a creative director, copywriter, graphic designer, art director, commercial artist, web developer, web designer, digital media strategist and digital artist and many other fields. Our alumni are doing well as part of the diverse fields of this discipline:
- Mirza Ameer is currently a Creative Manager at Ogilvy Pakistan
- Anam Shadid is currently working as a Brand Manager at Kapray & Zellbury
- Ribaa Khan works as a Account Manager at Vidpresso
- Sana Shabuddin is working as a Digital Media Strategist at Harley Willington
- Mahnoor Qazi is currently employed as a Digital Artist at East River

FILM AND TV
We live in a media saturated world, and the moving images that we are constantly bombard-ed which helps us form an critical understanding of the contemporary world.

The curriculum is constantly updated in line with the latest developments in the discipline.

CAREER OPPORTUNITIES
Given the interdisciplinary nature of the program, students have a diverse range of career opportunities from academia to the creative agencies. Graduates can find careers on stage, in the film and TV industry (both behind and in front of the screen), radio, and the internet.

The learning imparted to them prepares our students to be script writers, directors, producers, actors, set designers, art directors, radio jockeys, and quite a few more.

While still a young college graduates of the department of FILM & TV are working at various organizations:
- Omer Siddiqui is currently working as an Assistant Producer at Express Creative
- Asad bin Ajmal works as a Videographer with Express Television Media Network
- Masoud Alami is employed by H Now in the music department and also works freelance. Most recently he was the Music director of the film Pari (directed by Sued Ali A).
- Shahzad Zaka, Koosh Shohary and Zewwar Yawar were part of the art direction team of the TV serial Khaani.
- Bilal Siddiqui has freelanced with director Anjum Shazad

Shiraz Sheikh is a freelance filmmaker and has worked on various ad films.

JOURNALISM
The human capacity for information is insatiable and while the world exists there will always be news. With unique and thorough training in reporting, writing, editing, script writing, news art and skills of interviewing Students can make their mark in the evolving field of journalism.

At ZCOMS the JOURNALISM program teaches students the art of communicating clearly and directly with their audiences. Writing objectively without personal bias is the true essence of Journalism. The medium has changed greatly with the surge in web, blogging and social media platform serving as vital means of immediate and instantaneous news and information.

CAREER OPPORTUNITIES
Today the Print media and the Digital media provide with a array of opportunities for media graduates. One can become a broadcast journalist, reporter, editorial assistant, sub editor, magazine feature editor, newspaper journalist, columnist, copy-editor, proofreader, news anchor, web content manager and many more. Our Alumni currently working in the field are:
- Faras Imran is employed as a Sub - Editor at The Express Tribune - National Desk
- Hadia Khan is working as a Creative Coordinator at ABP Telik News

The institute offers a 4-year Bachelors Program in Communication, Design and Film & TV. We have to prepare our students to not only be creative, but work towards creating a better and tolerant world.

INTRODUCTION
Makes the final assessment.

OUR MISSION
To instill the young mind with curiosity, understanding of media, and the courage to act.

Institute offers a 4-year Bachelors Program in Communication, Design and Film & TV. We have to prepare our students to not only be creative, but work towards creating a better and tolerant world.

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LEARNING AND TEACHING STRATEGIES

ZCOMS believes in skill-based assessment and focuses on interactive and practical learning to enhance the experience & creative thought process. Along with traditional teaching methodologies like class lectures, assignments, presentations, projects and quizzes are also practiced.

Students go on educational excursions, visit exhibitions, attend seminars, participate and organize events, volunteer at media events to gain first hand experience and witness the rigor.

At ZCOMS we have:
- Guest lectures
  - Minoo Creemmar Munich based fashion and social designer
  - ARZ-E-PAKISTAN Screening of Award winning film
  - Murtaza Shalik writer, creative director and filmmaker
  - Mahera Omer filmmaker and founder of Pakistan Animal Welfare Society (PAWS)
  - Kharun Qadeer, Associate Director Corporate Affairs GEO Network
  - Film Screening of ‘Maa-e-Mil’ and Interactive session with Director, Arjum Shehzaad, Producer, Badar Iqram

2. Events
- Pakistan International Film Festival (PIFF)
- 60 Second International Film Festival (FPF)
- Art Institution
- Farewell 2018, Clasus Night
- Bilando Party
- SpringFest
- Beach Party
- Dayout at Farm

ADMISSION POLICY

Basic Admission Criteria:
- Minimum A-Levels 3 passes/Intermediate (55% marks, including 1st year no supplementary) or equivalent from a recognized institution.
- Merit will be decided upon basic admission criteria.
- Whereas, Final list will be displayed after evaluation of ZCOMS entrance test score, group discussion and interview.

*Candidates awaiting result can also apply.

FEE STRUCTURE

- Admission Fee: Rs. 15,000/-
- Tuition Fee: Rs. 175,500/- (1st Year)
- Examination Fee: Rs. 12,500/- (1st Year)
- Security Deposit: Rs. 5,000/-
- Students Activity: Rs. 2,000/-

Note: Any additional taxes imposed by the government will be the liability of the students/parents/guardian.

The University reserves the right to increase the fees if required according to the recommendations of the Governing Body. Advance fees have to be paid semester-wise. All dues need to be cleared within two weeks of commencement of the academic year. 2% surcharge per month will be levied on outstanding fees after the due date.

CONTACT INFORMATION

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BFA, INDIAN VALLEY SCHOOL OF ART AND ARCHITECTURE

LECTURER / ADMINISTRATION
FARYAL QUL
PROGRAM MANAGER, STUDENT ADVISOR AND LECTURER
MS MEDIA STUDIES (IN PROCESS), SZABIST BBA MASS COMMUNICATION, UNIVERSITY OF KARACHI

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PHD, MASS COMMUNICATION (IN PROCESS), UNIVERSITY OF KARACHI
MA, MASS COMMUNICATION, UNIVERSITY OF KARACHI
BA (HONS), MASS COMMUNICATION, UNIVERSITY OF KARACHI

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MEMBER OF DEPARTMENTAL RESEARCH COMMITTEE (IDC)

SAODAM TUFAIL
SHAHJAHAN SALEEM
BS FILM & TV - SZABIST
NORMAL REPORTER & ADJUNCT FACULTY

JAVED NAQVI
ALI KAZMI
NATIONAL COLLEGE OF ARTS LAHORE (NCA)
ACTOR, DIRECTOR AND GRADUATE MEMBER OF NATIONAL ACADEMY OF PERFORMING ARTS (NAPA)

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SHAHJAHAN SALEEM
FARYAL GUL
PROGRAM MANAGER, STUDENT ADVISOR AND LECTURER

MANIZHE ALI
DIRECTOR, ZCOMS

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DIRECTOR, FACULTY AFFAIRS
MR. TMS HASSAN

FOUNDING DIRECTOR ZCOMS
M. FAZAH SULTAN
FINANCE DIRECTOR, ZIAUDDIN UNIVERSITY

LECTURER/ DESIGNER/ DOCUMENTARY PHOTOGRAPHER
MS. NAULA MAHMOOD

DIRECTOR, CEJ / IBA
MR. KAMAL SIDDQUI

FOUNDER AND CREATIVE DIRECTOR, MORANGO FILMS
ABRAR UL HASSAN

DIRECTOR, QEC, ZIAUDDIN UNIVERSITY
DR. ASGHAR AHMAD

PRINCIPAL COLLEGE OF SPEECH LANGUAGE & HEARING SCIENCES, ZIAUDDIN UNIVERSITY
AYEENA VIJAYAN
UNIVERSITY POLICIES

★ REFUND POLICIES
Refund of fee will be according to the following rules.
Condition:
* Withdraw before commencement of classes Refund of full tuition fee
* Within 45 days of commencement of classes Refund of half tuition fee
* After 45 days of commencement of classes No refund.

★ STUDENT COUNSELLING
Counselling is provided by a professional counsellor and staff member. This counselling is designed to assist students in resolving personal problems that are interfering with their academic progress and success. Such problems might include difficulty in adjusting to college, family concerns and/or low self-esteem.

★ CODE OF CONDUCT
Students are expected to observe generally accepted standards of conduct. The University reserves the right to exclude any student whose conduct is injurious to the University.

★ FINANCIAL POLICY
Students seeking admission to Ziauddin University are expected to pay the fees approved by the Governing body of the University. Admission fee is submitted only, once at the time of admission to the first year. For subsequent years, students are required to pay only the tuition fee. For local students, all fees are paid in Pakistani currency, and for overseas students, all fees are paid in US dollars. Parents/guardians are advised to ensure that fees for each academic year are paid within the due date. The University reserves the right to cancel admission if the fee is not paid within the due date. Students who repeat the year due to failure or otherwise are required to pay the tuition fee for each year being repeated.

The University does not handle cash or personal cheques. Fees must be paid in the form of a pay order payable to Ziauddin University. Late fee charges will be levied as per university policy after due date.

★ FINANCIAL AID
The University provides this facility to limited number of candidates based on merit and individual needs. Each case is treated on an individual basis and decisions are made by the financial aid committee.

* All fees need to be paid within 2 weeks of commencement of the academic year.
* 2% surcharge per month will be levied on outstanding fees after the due date.
Students’ sense of belonging during their university education is an essential component in enhancing sense of perseverance, and success. Here at ZU co-curricular activities cover a broad range of on campus programs, professional workshops for students and sessions that are designed to promote leadership and interpersonal skills, civic engagement and professional competence in students while increasing campus involvement.

We at ZU feel campus involvement plays a crucial role in the growth of every student personal growth. Whether it is being part of extracurricular or literary societies or getting involved in sports activities, the positive results are explicitly seen during their education as well as in life ahead. With more than 8 student societies on campus finding a niche in one or even more of them is easy for the students.

**MISSION**
Our mission at Ziauddin University is to offer a Student Life which is a learning and development through student led initiatives, experiential learning and civic engagement.

**VISION**
To create opportunities for students to clarify and challenge their values, potential, roles, and responsibilities within the University, the greater communities, and the global society.

**OBJECTIVES**
- Facilitating student societies of Ziauddin University in order to conduct events that are according to their constitution and society objectives.
- Actively seek out student opinions on matters of concern.
- Advising the administration on any matters of concern to the student body.
- Maintaining communication and establish liaison between the students and the administration.
- Developing a fully functional Alumni board and to involve the most distinguished Alumni’s of Ziauddin University to initiate different programs that should be but not limited to guest speaker sessions, seminars, yearly alumni meet-up, student mentorships program, student development, event sponsorships, scholarships etc.
- Conducting annual Job Fair for all the students of Ziauddin University.
- Assisting student of Ziauddin in their queries, problems etc. that they face while studying at Ziauddin which could be of academic or related to extra-curricular in nature.
- To provide, encourage and develop amongst its students the formation, organization and operation of clubs and societies for the above purposes and to regulate, supervise and facilitate the activities of all student societies.
- Arranging frequent extra-curricular activities for the student whose sole purpose would be to give recreational time to students that shall foster managing, operating and extra-curricular skills of the students.
- Enhance the educational environment by promoting, educating, and facilitating campus-wide understanding of students’ rights responsibilities, and freedoms.

**STUDENT SOCIETIES AT ZIAUDDIN UNIVERSITY**

**WELFARE AID for ILL and DEPRIVED**
The welfare association for ill and deprived is a student based non-profit organization founded in March 2007 on the observation that patients were refusing medical care due to the sole reason of being unable to pay for it. The goal is to provide financial support for underprivileged patients presenting at the KDLB campus of Ziauddin Hospital. However, have expanded to support needy patients in Civil Hospital, JPMC and Ziauddin North Campus.

**ZU ATLAS**
An atlas is a collection of maps – a 2D representation of reality. It serves as a lodestar, a guide for the weary traveler through dark nights and unfamiliar waters. The Ziauddin Atlas hopes to achieve the aims of cartographers of yore. We hope to take the complex thoughts and dreams that characterize the student body of Ziauddin University and chart them on a map; an atlas that can be held in your hands and perused at leisure.

**ZIAUDDIN LITERARY AND CULTURAL SOCIETY**
Our goal is to keep the Ziauddin University student body active and entertained; through extracurriculars such as theatre, bake sales, musical events, scavenger hunts and field trips amongst a multitude of other activities. It is a continuous effort on the part of this organisation to constantly come up with exciting new events and things to do.

**ZIAUDDIN UNIVERSITY DEBATING CHAMPIONSHIP**
The platform to cultivate and challenge the confidence and public speaking skills of the students to the highest degree. The program includes intense parliamentary debating followed by quarter finals, semifinals and finals. This competition is open to schools (O levels and A levels) and universities. Teams compete one on one with topics that range from political, social, economic and other wide variety of themes to win the title of the winner, runners-up and most promising team respectively. The tournament honors individual speakers and takes pride and credit in having produced several polished speakers that have represented Pakistan at WSDC, WUDC and ESIDC.

**ZIAUDDIN MEDIA SOCIETY**
Ziauddin Media Society is now registered as a student society at the Ziauddin University. It is run under the supervision of ZU faculty and by the students. Our mission is to undertake relevant, accessible and contemporary Media projects which explore multicultural Pakistan. One of the principal objectives of the society is to increase the participation of students in all aspects of the professional Media process.