

PEC Accredited Under Washington Accord Level-II (OBE) Discover Yourself

Inventing the Future....

GINEERING 11 MECHATRONIC

# About SZABISTST

Shaheed Zulfikar Ali Bhutto Institute of Science and Technology (SZABIST) is highly ranked and fully chartered institute of Pakistan established through a Legislative Act of Sindh Assembly (Sindh Act No. XI of 1995). It is approved and recognized by the Higher Education Commission (HEC) Pakistan as a degree awarding institution. All the programs offered at SZABIST are consistent with the guidelines laid by HEC and other regulatory bodies, for example, National Business Education Accreditation Council (NBEAC), National Computing Education Accreditation Council (NCEAC), National Accreditation Council for Teacher Education (NACTE), and Pakistan Engineering Council (PEC).

#### Vision

SZABIST aims to be a globally recognized institute for excellence in education, research, development, and distinction in service.

#### Mission

SZABIST is committed to produce highly qualified professionals to:

- Meet national and global contemporary needs;
- Conduct cutting edge research and development;
- Provide hi-tech scientific and technological expertise;
- Meet current and future socio-economic challenges;
- Meet global citizenship responsibility.

#### HEC & CIEC Ranking

SZABIST is ranked as one of the most reputed university by Higher Education Commission (HEC) and Chartered Inspection and Evaluation Committee (CIEC) Sindh. All programs of SZABIST are conducted under strict compliance of the relevant regulator bodies such as NBEAC, NCEAC, NACTE, PEC and KHDA Dubai. Since 2012, the SZABIST-QEC has been awarded more than 91% in the quantitative assessment by Quality Assurance Agency (QAA) HEC, Pakistan.

#### International Linkages

### SZABIST is a registered member of the following international and national associations:

International Association of Universities (IAU), Paris; Association of Commonwealth Universities (ACU), London; The Association to Advance Collegiate School of Business (AACSB), Singapore; Asia University Federation (AUF), Seoul; Asia-Pacific Quality Network (APQN), People's Republic of China; Association of Quality Assurance Agencies of the Islamic World (AQAAIW), Malaysia; The Talloires Network, USA; The Chartered Institute of Logistics and Transport (CILT), UK; Management Association of Pakistan (MAP), Karachi; Marketing Association of Pakistan (MAP), Karachi, Human Resource Development Network (HRDN), Islamabad.

#### Research

SZABIST strongly encourages research. SZABIST published research journals in various disciplines including Computing i.e. the Journal of Independent Studies and Research (JISR-C). SZABIST also conducts various conferences and seminars our academic year.

#### **BE Mechatronics Program Objectives**

The objectives of the program are to provide a broad and basic education in multiple disciplines comprised of Mechanical, Electronics, and Computer Engineering, to ensure that students in the program are exposed to a wide spectrum of engineering knowledge and practice. Upon completion of their degree, the Bachelor of Engineering (Mechatronics) graduates will be able to:

**1.** Be competent mechatronic engineers who are knowledgeable, skillful and able to solve complex engineering problems.

**2.** Have inclination towards research and lifelong learning and be able to promote entrepreneurial ideas.

**3.** Be effective engineers with leadership qualities and high morals & professional ethics.

#### **MS Mechatronics Program Objectives**

The broad objectives of the Master's program in Mechatronics Engineering are to instill in its students a solid foundation of mathematical, scientific and engineering knowledge in addition to developing the intellectual skills essential for prosperity and success in their careers. The program is structured in such a manner that the students are provided a firm theoretical foundation with opportunity to strengthen their knowledge through research assignments, practical training and projects. The objectives of Masters in Mechatronics Engineering program are to:

Enable students to pursue a rigorous post doctorate / research program in Mechatronics Engineering.

Improve the marketability of our students in the local industry, public sector and R&D organizations.

Provide technical confidence and financial guidance needed to start a small-scale industry to graduates interested in self-employment.

#### **Employment Opportunities**

Graduates with a Mechatronic degree can take up careers in a wide spectrum of industries including:

- Robotics
- Aerospace
- Chemical
- Defense
- Automotive and Manufacturing
- Health, Medical and many more

As well as in businesses that requires extensive computer support, such as banking and commerce.

Contributions can be made to these industries in a variety of roles including design engineer, software engineer, project planner, product designer and project manager.



for queries: mechatronics@szabist.edu.pk

### **BE & MS (Mechatronic Engineering)**

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### BE (Mechatronic Engineering)

SZABIST offers four-year (eight semesters)

BE-Mechatronics Engineering degree program which is accreditated Under Level-II (i.e. OBE- Outcome Based Education) by Pakistan Engineering Council. This program has received 7-Stars i.e., World Class rating by Chartered Inspection & Evaluation Committee (CIEC) Sindh. SZABIST is a pioneer university to offer this program at undergraduate level in the province of Sindh. The program is essentially a day program and consists of 48 courses with a total of 140 credit hours (all electives and certain courses may be offered in the evening). The program is supported through well-equipped state-of-the-art laboratories. Internship opportunities are provided to meet degree requirement. The maximum time limit to complete the BE-ME degree program is six years.

#### Admission Criteria

The candidate must have completed Intermediate (Pre-Engineering) / O-Levels

(minimum 8 subjects including 5 compulsory subjects; English, Urdu, Maths, Islamiat & Pakistan Studies) and A-levels (minimum 3 subjects) or equivalent with a combination of (Physics, Chemistry and Mathematics) with minimum 60% marks (those waiting for result can also apply). Equivalency of grades for the candidates having Cambridge High School Certificate with Mathematics, Physics and Chemistry subjects are obtained as follows:

A-Level Grade	Α	в	С	D	Е
Equivalent Intermediate %	85	75	65	55	45

- Candidates with DAE (Mechanical/Electronics/Electrical/ Instrumentation/ Automation) having at least 60% aggregate
- marks from an institute recognized by the Government can also apply. Minimum 60% aggregate marks each in matriculation and in
- Intermediate/equivalent exams.
- Please note that no deviation in this regard is allowed.
- Inter Board Committee of Chairmen (IBCC) equivalency is required for O & A Levels/IB Diploma/High School Diploma or equivalent.
- General Paper (A Levels) will not be counted.

### MS (Mechatronic Engineering) SZABIST offers MS (Mechatronic Engineering)

For admissions in the MS Mechatronic

degree with two specializations namely: Robotics & Industrial automation and Smart Electromechanical Systems. The program is of 2-year duration and is offered in the evening. In addition to five core courses, students are required to complete 3 elective courses of their choice of specialization. Although students are encouraged to undertake Thesis/Research Project of 6 credit hours but they also have an option to undertake two elective courses in lieu of the Thesis/Research Project in their choice of specialization. The maximum time limit to complete the MS degree is four years.

#### Admission Criteria

Engineering program, candidates must possess BE in Mechatronics / Mechanical / Electronics / Electrical / Telecommunication / Industrial / Manufacturing / Aerospace / Avionics with minimum 55% marks / 2.0 CGPA from a university recognized by HEC. Bachelor of Engineering Degree must be accredited by PEC. GAT (General) or HAT relevant is mandatory for MS students with minimum 50% score. Last degree verification from HEC is required.

#### **Scholarships and Financial Assistance**

#### **SZABIST Funded Scholarships**

- SZABIST Need-Based Scholarship
- SZABIST Merit-Based Scholarship

#### **External Donor Funded Scholarships**

- Sindh Endowment Fund Scholarships
- Balochistan Endowment Fund Scholarships (BEFS)
- Balochistan Education Endowment Fund Scholarships (BEEFS)
- Chief Minister SZABIST Merit and Need-Based Scholarships
- Prime Minister's National ICT R&D Fund Scholarships
- National Grass Root ICT Research Initiative (NGIRI)
- Khairpur District Scholarships
- Ministry of Religious Affair & Interfaith Harmony
- Ihsan Trust Qarz-e-Hasna Facility

Fee	Pakistani Nationals	Foreign Nationals	Fee	Pakistani Nationals	Foreign Nationals
Admission Fees:	Rs. 20,000	US\$ 500	Admission Fees:	Rs. 20,000	US\$ 500
Security Deposit (refundable):	Rs. 10,000	US\$ 330	Security Deposit (refundable):	Rs. 10,000	US\$ 330
Student Activity Charges:	Rs. 1000	US\$ 30	Student Activity Charges:	Rs. 1000	US\$ 30
Tuition Fees per Course (BE-Mechatronics)*:	Rs. 17,400 (after 5% Subsidy 16,530)	US\$ 390 (US\$ 371)	Tuition Fees per Course (MS-Mechatronics)*	: Rs. 22,200 (after 25% Subsidy 16,650)	US\$ 525 (US\$ 394)

Note: \*\*SZABIST reserves the rights to revise the fee/withdraw of scholarship without any prior notice. \*3 Credit Hour fee.

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### **BE & MS (Mechatronic Engineering)**

#### CPD Course on Clean Coal Combustion Technology for power generation at SZABIST Karachi



- The first CPD Course was organized in collaboration with the Pakistan Engineering Council on 30th July 2018 at SZABIST, Karachi.
- It was conducted by Dr. Ahmad Hussain and Dr. Faraz Junejo collaborated to conduct the course.
- It focused on the Clean coal combustion technology for power generation.
- When coal burns, it releases carbon dioxide and other emissions in flue gas, the billowing clouds you see pouring out of smoke stacks.
- Wet scrubbers, Lów-NOx (nitrogen oxide) burners , Electrostatic precipitators are used to minimize emissions of sulfur dioxide, nitrogen oxides and particulates.
- Gasification and Integrated gasification combined cycled systems (IGCC) were discussed and described during this CPD course.

#### ASME

International Conference on Engineering and Technology (ICET-20) 18th February 2020, Bursa, Turkey.

Venue: Kervansaray Bursa city hotel, Turkey.

Paper Title: Energy Loss in pipes for Industrial Applications.

Bisma Latif And Minhaj Asif of BE Mechatronics 3rd year 6th semester



#### **Industrial Trips**

Mechatronics Dept. at SZABIST is a hard at work in not only providing quality education to our students but also familiarizing them with existing industries and their placement standards. In the past few years, our graduates have visited several industries, notably English Biscuit Manufacturers (EBM) and Soorty Enterprise. The visits were followed by interactive sessions by the respective management to guide our students for their future.



#### Job Placement

We make sure that our graduates are well topped of with both technical and managerial skills. SZABIST has a reputation of producing graduates accustomed to the norms and needs of the current age. Our Alumni are being received very well by both the companies in Pakistan and abroad , delivering high level performance , enhancing reputation and opportunities for our coming graduates.





#### ZAB -E-FEST

ZAB -E-FEST is an event organized by the Mechatronics Department of SZABIST. ZAB E Fest aims at providing keen individuals with a platform to create, innovate and excel their skills. Participants from various institutes register's in the vast number of modules that are offered in this event. This event enables students to improve their problem solving techniques and comes up with best possible solution for different scenarios.

Daad Scholarship help students to overcome their financial crisis and receive quality education and for that a seminar was conducted. The main idea of that seminar was to inform students that how they can become eligible for this scholarship and continue their education without any fear.



#### **Community Service**

Students of Mechatronics Department at SZABIST engage in volunteer activities that focus on providing services needed by different sectors of the community. Non-credit-earning activities, though may count toward course requirements. The primary emphasis is on providing service.

Engaging in community service provides students with the opportunity to become active members of their community and has a lasting, positive impact on society at large.

An organized learning experience that combines community service with express learning goals, preparation, and reflection. Students involved in Service-Learning are expected not only to provide direct community service but also to learn about the context in which the service is provided, the connection between the service and their academic coursework, and their roles as citizens.





### Alumni Mechatronic Engineering SZABIST



Nain Tara Leghari (Alumna SZABIST 2014) Automotive Product Development Engineer Segula Technologies, France



Marium Feeroze Alvi (Alumna SZABIST 2017) Assistant Manager Logistics, Supply Chain Unilever Pakistan Limited





Hafsa Mir (Alumna SZABIST 2017) Lecturer BE Mechatronics, Szabist



Atif Saeed (Alum SZABIST 2014) Lecturer BE Mechatronics, Szabist

Yasir Ali (Alum SZABIST 2012) Embedded Software Developer, I.C. Lercher Gmbh & Co. KG, IM SÄGENLOH, Stockach, Germany



Rayan Isran (Alum SZABIST 2017) Lab Engineer, Szabist



Danish Abdul Razzak (Alum SZABIST 2016) Assistant Manager, Indus Motor Company

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### Faculty

Dean (Computing & Engineering Sciences)	Assistant Professor/Program Manager	Lecture
Dr. M Altaf Mukati	Engr. Aneel Ahmed	Hafsa Mir
Ph.D (Computer Engg.),	MS (Telecommunication Engg.),	MS (Industrial Manufacturing Engineering &
Boston/Hamdard University.	NUCES-FAST Lahore	Management), NUST, Karachi.
Head of Department	Assistant Professor	Lecturer
Dr. Faraz Junejo	Engr. Abdul Hussain Saeed	Engr. Farhan Mumtaz
Ph.D (Mechatronics Engg.),	MS (Electrical Engg.),	MS (Hamdard University)
Loughborough University, UK.	Texas Tech University, USA	Industrial Control & Automation
Professor/Director ORIC	Assistant Professor	Lecturer
Dr. Ahmed Hussain	Engr. Tanzila Younas	Engr. Sarmad Hameed
PhD (University Technology, Malaysia)	MS (Industrial Manufacturing Engineering &	MS (Industrial Control & Automation),
Mechanical Engineering	Management), NUST, Karachi.	UIT, Karachi.
Assistant Professor	Assistant Professor	Lecturer
Dr. Saim Ahmed	Engr. Azeem Anwer	Engr. M. Atif Saeed
PhD (Control Science & Engineering)	ENSAE / Sup'Aero Toulouse, France	ME (Mechanical Design & Fabrication),
Nanjing University of China.	M.S. (Aerospace Engineering)	NED University, Karachi.
Assistant Professor	Assistant Professor	Lecturer
Engr. Humera Rafique	Engr. Nasreen Bano	Engr. Syed Najiullah Hussaini
MS (Telecommunication Engg.),	ME (Micro System Design),	MS Automotive Engineering
SSUET, Karachi.	NED University, Karachi.	RMIT University, Melbourne, Australia

### Departmental Labs: http://khi.szabist.edu.pk/facilities.html



**Industrial Automation Lab** (Engr. Muhammad Nabeel)



**Thermo Fluids Lab** (Engr. Muhammad Adeel)



**Electronics Lab** (Engr. Muhammad Shan)



**Engineering Workshop** (Engr. Hamza Ahmed)



**Robotics & Control Lab** (Engr. Ismail Manssor)

**Mechanics Lab** 

(Engr. Abbas Shabbir)



**Physics Lab** (Engr. Abdul Basit Aftab)



**Drawing Studio** (Engr. Rayan Isran)

### **APPLY ONLINE:**

Log on to: http://admissions.szabist.edu.pk

**For further information please contact:** F-153, Clifton, Block-5, Karachi, Pakistan. UAN: 111-922-478, Tel: 021-35823433 (Ext # 333, 334, 304). Fax: 021-358 21537. www.szabist.edu.pk

**Admissions Start** Last date to apply Interview **Classes commence** 

May 15, 2020 28 July, 2020 20 July to 8 August 2020 **September 28, 2020** 

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