

## **BE (Mechatronics) Program Mission, Objectives and Outcomes**

### **Mission Statement of Mechatronics Engineering Department**

Our goal is to prepare graduates for successful engineering and professional careers and leadership roles with lifelong learning and ethical conduct that will lead them to be engaged good citizens, engineers, and professionals in their community and the world.

### **Mission Statement of BE (Mechatronics) Program**

The BE (Mechatronics) Program has the primary mission of providing a high-quality undergraduate education with:

- i. A curriculum that evolves to keep pace with the rapid growth of technology in various areas of Mechatronics engineering.
- ii. A faculty that provides teaching and mentoring both in and out of the classroom.
- iii. Class sizes that encourage student participation.
- iv. Project experiences that build on fundamentals and develop team skills.
- v. Facilities and latest equipment that is readily available.

The faculty is committed to offer a broad undergraduate experience that will promote professional growth and prepare students for a variety of engineering careers, graduate studies, and continuing education.

### **Program Educational Objectives (PEOs)**

Upon completion of their degree, the SZABIST BE (Mechatronics) graduates will:

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.

Among the three stated objectives, the first one is related to the attributes including acquiring and furthering domain knowledge and their employability in industry. The second objective is related to the professional competence and self-learning skills of the graduate engineers. The third objective focuses on the personal attributes including ethics, leadership and commitment.

### **List of Program Learning Outcomes (PLOs)**

Program learning outcomes are as follows:

#### **i. Engineering Knowledge**

An ability to apply knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.

**ii. Problem Analysis**

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

**iii. Design/Development of Solutions**

An ability to design solutions for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.

**iv. 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.

**v. 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.

**vi. 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.

**vii. 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.

**viii. Ethics**

Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice.

**ix. Individual and Teamwork**

An ability to work effectively, as an individual or in a team, on multifaceted and /or multidisciplinary settings.

**x. 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.

**xi. Project Management**

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

**xii. Lifelong Learning**

An ability to recognize importance of, and pursue lifelong learning in the broader context of innovation and technological developments.

## Mapping of PLOs to PEOs

Following table shows the mapping between Outcomes and Objectives and how achievement of the Program Learning Outcomes supports achievement of the Program Objectives.

S. No.	Program Learning Outcomes (PLOs)	Program Educational Objectives (PEOs)		
		PEO 1	PEO 2	PEO 3
1	Engineering Knowledge	✓		
2	Problem Analysis	✓		
3	Design/Development of Solutions	✓	✓	
4	Investigation	✓	✓	
5	Modern Tool Usage	✓	✓	
6	The Engineer and Society		✓	
7	Environment and Sustainability		✓	
8	Ethics			✓
9	Individual and Team Work	✓	✓	✓
10	Communication	✓	✓	✓
11	Project Management	✓	✓	✓
12	Lifelong Learning		✓	