

## **Department of Agricultural Engineering**

B.Sc. Agricultural Engineering (OBE system of PEC)

### **University Vision**

“The University is expected to be immensely innovative in fostering world-class research and becoming a vital agent for the regional development”

### **University Mission**

“We aspire to be innovative in fostering world class excellence in diverse academic disciplines developing into a vital player gathering knowledge and conducted research to benefit people of Pakistan in particular, regional countries in general and world at large”

### **Department Vision**

To produce competent Agricultural Engineering professionals through high quality education using modern teaching and research for national and international socio-economic development. The department of Agricultural Engineering, BZU, Multan would like to recognized nationally and internationally as a possible solution provider to the problems associated with: the design and manufacturing of Agricultural machinery and Farm Mechanization, Water Resource Management, Irrigation and Drainage Engineering, Environmental challenges of Water and Waste Water, Soil and Solid Waste, Air Pollution Control and Energy Systems.

### **Department Mission**

The mission of Agricultural Engineering degree program is to produce Agricultural Engineers able to plan, design and manufacture agricultural machinery, agriculture field and engineering problems, designing modern irrigation and drainage systems as well as tackle environmental issues and energy utilization.

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

The academic program of B.Sc. Agricultural Engineering at Bahauddin Zakariya University, Multan has the following program educational objectives (PEOs) for its graduates. After undergraduate graduation in a period of four to six years, the graduates of Agricultural Engineering should:

PEO 1 – Have achieved competence in methods of analysis using the knowledge of fundamental

sciences, engineering sciences, and computation required for the practices of Agricultural Engineering.

PEO 2 – Have developed skills required to the design process; including the abilities to think creatively, to formulate problem statements, to communicate effectively, to synthesize information, and to evaluate and implement complex engineering problem solutions.

PEO 3 – Have attained position of leadership of a small section/department/team.

PEO 4 – Earned a repute of effective and ethical team member/leader

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

Following are the 12 attributes as per the guidelines of HEC that have to be accomplished by the graduates at the time of completion of their graduation.

#### **1. ENGINEERING KNOWLEDGE**

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

#### **2. PROBLEM ANALYSIS**

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

#### **3. DESIGN / DEVELOPMENT OF SOLUTIONS**

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

#### **4. INVESTIGATION**

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

#### **5. MODERN TOOL USAGE**

An ability to create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to complex engineering activities, with an understanding of the limitations.

## 6. THE ENGINEER AND SOCIETY

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

## 7. ENVIRONMENT AND SUSTAINABILITY

An ability to understand the impact of professional engineering solutions in societal and environmental contexts, demonstrate knowledge of, and need for sustainable development.

## 8. ETHICS

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

## 9. INDIVIDUAL AND TEAMWORK

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

## 10. COMMUNICATION

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

## 11. PROJECT MANAGEMENT

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

## 12. LIFELONG LEARNING

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