

Balochistan Journal of Engineering & Applied Sciences (BJEAS)

Volume 2, No. 2

December 2019

Balochistan University of Engineering & Technology, Pakistan

Email: bjeas.journal@oric.buetk.edu.pk

p-ISSN: 2518-2706

Balochistan Journal of Engineering & Applied sciences (BJEAS)

BJEAS is a biannual research journal published by the Balochistan University of Engineering and Technology (BUET) Khuzdar, through the Office of Research, Innovation and Commercialization (ORIC). It is dedicated to the dissemination of research among institutions, universities, researchers and students with the promotion of quality on national and international levels as its main objectives.

BUETK is a renowned degree awarding institute of Engineering and Technology dedicated to providing quality education and promoting research activities in Pakistan and on international levels as well. It is a public-sector university established by the Government of Pakistan in 1987 and is approved and recognized by Higher Education Commission (HEC) of Pakistan and Pakistan Engineering Council (PEC).

Guidelines for authors

BJEAS seeks to publish research papers that identify, extend, or unify scientific knowledge and research pertaining to engineering and applied sciences.

The researchers/ authors are requested to submit well-researched and original unpublished papers, not already submitted to another journal for publication. Papers are accepted after approval through a process of double-blind peer-reviewed by independent reviewers.

Copyright

All the research papers published in this issue are licensed under the p-ISSN No: 2518-2706. Which permits unrestricted, non-commercial use, distribution and reproduction in any medium, provided the work is properly cited.



Patron-in-Chief's Message

I am delighted to have the opportunity to share a few thoughts at the time of publication of the second issue of BJEAS. In this era of technological advancements, it is necessary that research work carried out in various engineering and sciences disciplines is recognized and propagated properly. BJEAS is a step towards disseminating high-quality research nationally as well as globally while maintaining the unique recognition of Balochistan. I believe that this Journal will become a hallmark of research in the future. As Patron-in-Chief, I will ensure that BJEAS remains in line with rapidly shifting scientific communication landscape, while also maintaining and intensifying the high standards of academic excellence.

I sincerely hope that research articles published by BJEAS will provide insightful and stimulating information to readers and scholars that will shape our future and lead the way to extraordinary discoveries.

Prof. Dr. Ehsanullah Khan Kakar Vice Chancellor Balochistan UET, Khuzdar

Aims of Journal

BJEAS is a quality publication of peer-reviewed and refereed journal from diverse fields in sciences, Engineering and Technologies that emphasizes new research, development and their applications. BJEAS provides an open-access forum for scientists, scholars, researchers and engineers to exchange their research work, technical notes & surveying results among professionals through print and online publications.

Scope of Journal (but not limited to)

	science

Electrical engineering

• Electronic engineering

• Power engineering

Acoustical engineering

Thermal engineering

Automotive engineering

• Naval architecture

• Bioprocess engineering

• Aquaculture engineering

• Automation/Control systems/Robotics

• Construction

Manufacturing

Biological engineering

Genetic engineering

Biological organisms

• Protein engineering

• Energy engineering

Manufacturing engineering

• Systems engineering

Textile engineering

• Reliability engineering

Nanoengineering

Petroleum engineering

Mathematics

• Computer engineering

• Optical engineering

Mechanical engineering

Manufacturing engineering

Vehicle engineering

Aerospace engineering

• Agricultural engineering

Food engineering

Applied engineering

• Computer-aided drawing and design

Electronics

Graphics

Nanotechnology

Biomedical engineering

• Biochemical engineering

• Tissue engineering

Building services engineering

• Industrial engineering

Component engineering

• Construction engineering

• Safety engineering

Mechatronics

Chemical engineering

Review Policy of Journal

This journal has zero tolerance against plagiarism. All submitted papers are scanned through an approved Plagiarism detection software as per HEC guidelines. After plagiarism check, the papers are reviewed under double-blind peer review process.

Submission and acceptance of papers depend upon the response of the reviewers. Plagiarism checking, and review process may take from four weeks to eight weeks depending upon the response from the reviewers and compliance from authors. After satisfactory review, the Editorial Board accepts the paper for publication and acceptance letter is issued to the author(s).

MANAGING BOARD

PATRON-IN-CHIEF **Dr. Ehsanullah Khan Kakar**

PATRON

Dr. Syed Mushtaq Ahmed Shah

CHIEF EDITOR

Dr. Khair Muhammad Kakar

MANAGING EDITORS

Dr. Shabbar Naqvi Dr. Ayaz H. Jarwar

CO-EDITORS

Dr. Khadija Qureshi

Mehran UET, Jamshoro,

Pakistan

Dr. Amanullah Marri

NED University, Karachi,

Pakistan

Dr. Safdar Hussain Bouk

DGIST, Daegu,

South Korea

Dr. Salah Uddin

Balochistan UET, Khuzdar,

Pakistan

Dr. Saleem Iqbal

University of Balochistan,

Quetta, Pakistan

Dr. Abdullah Mengal

Balochistan UET, Khuzdar,

Pakistan

Dr. Ali Raza Shah

Balochistan UET, Khuzdar,

Pakistan

Dr. Tipu Sultan

University of M&T, Lahore,

Pakistan

Dr. Faisal Ahmed

CEME NUST, Islamabad,

Pakistan

Dr. Inayat Ali

Baochistan UET, Khuzdar,

Pakistan

Dr. Imran Sarwar

Baochistan UET, Khuzdar,

Pakistan

Dr. Inam Ullah Bhatti

Mehran UET, Jamshoro,

Pakistan

Dr. Nawab Faseeh Qureshi

Sungkyunkwan University, Seoul,

South Korea

Dr. Dileep Kumar

University of Suwan, Suwan,

South Korea

Dr. Aamir Zeb Shaikh

NED UET, Karachi,

Pakistan

Dr. Faizullah Maher

Balochistan UET, Khuzdar,

Pakistan

Dr. Jalal Shah

Balochistan UET, Khuzdar,

Pakistan

Dr. Ali Nawaz Mengal

Mir Chakar Khan Rind University,

Sibi, Pakistan

Dr. Sohrab Bizanjo

Balochistan UET, Khuzdar,

Pakistan

Dr. Waseem Asghar Khan

Balochistan UET, Khuzdar,

Pakistan

Dr. Raza Haider

Balochistan UET, Khuzdar,

Pakistan

Dr. Rashid

Balochistan UET, Khuzdar,

Pakistan

Balochistan Journal of Engineering & Applied Sciences, Volume 2, No. 2, December 2019

INTERNATIONAL EDITORIAL ADVISORY BOARD

Dr. Safeeullah Soomro

AMA International University, Salamabad, Bahrain

Dr. Osama Yousaf ababneh

Zarqa University, Zarqa, Jordon

Dr. M. Mowafaq

Sungkyunkwan University, Suwon, South Korea

Dr. Hazlina Binti Hamdan

Universiti Putra Malaysia, Serdang, Malaysia

Dr. Imdadullah Thaheem

DGIST, Daegu, South Korea

Dr. Muhammad Adil Zehri

P&D, Balochistan, Pakistan

Dr. Imran Ali

Datacom (pvt) Ltd, Australia

Dr. Emrah Evren kara

Düzce University, Düzce, Turkey

Dr. Ahmet Ocak

Ağrı İbrahim Çeçen University, Ağrı, Turkey

Dr. Ali Kashif Bashir

University of Faroe Islands, Tórshavn, Faroe Island

Dr. Mustafa Imran Ali

Arm Limited, United Kingdom

Dr. Sohail Akhtar

Concordia University, Montreal, Canada

Dr. Gul Agha

Illinois University Urbana Champaign, Ili, USA

Dr. Sved Zahoor Ul Haque

Caledonian College of Engineering, Muscat. Oman

Dr. Javed Ali

Caledonian College of Engineering, Muscat, Oman

Dr. Din Muhammad

University of Wollongong, Wollongong, Australia

Dr. Dileep Kumar

University of Suwon, Suwon, South Korea

Dr. Nawab Faseeh Qureshi

Sungkyunkwan University, Seoul, South Korea

Dr. Onur Saldir

Van Yüzüncü Yıl University, Van, Turkey

Dr. Muhammad Arsalan Shehzad

Georgia Institute of Technoology, Atlanta, USA

Dr. Syed Chattan Shah

Hankuk University of Foreign Studies, Seoul, South Korea

Dr. Safdar Hussain Bouk

DGIST, Daegu, South Korea

Dr. Syed Saad Azhar

Universiti Teknologi PETRONAS, Perk, Malaysia

Dr. Daphne Teck Ching Lai

Universiti Brunei Darussalam, Bandar Seri Begawan, Brunei

NATIONAL EDITORIAL ADVISORY BOARD

Dr. Ajaz Bashir Janjua

HMC, Taxila, Pakistan

Dr. Usman Azhar

BUITEMS, Quetta,

Pakistan

Dr. Faisal Ahmed

CEME NUST, Islamabad,

Pakistan

Dr. Tipu Sultan

University of M&T, Lahore,

Pakistan

Dr. Ramesh Kumar

Dawood UET, Karachi,

Pakistan

Dr. Feroz Ahmed Soomro

QUEST, Larkana,

Pakistan

Dr. Safiullah Soomro

QUEST, Larkana,

Pakistan

Dr. Imtaiz Ahmed Halepoto

QUEST, Nawabshah,

Pakistan

Dr. Aziz Ahmed Memon

Sukkur IBA University,

Sukkur, Pakistan

Dr. Muhammad Asim

Sukkur IBA University,

Sukkur, Pakistan

Dr. Sagib Siddiquie

BUITEMS, Quetta,

Pakistan

Dr. Irfan Ali Bacho

Mehran UET, Jamshoro,

Pakistan

Dr. Aftab Hameed Memon

OUEST, Nawabshah,

Pakistan

Dr. Shakil Ahmed

Sir Syed UET, Karachi,

Pakistan

Dr. Muhammad Asim

University of Karachi, Karachi,

Pakistan

Dr. M. Hussain Mahmood Mann

GC University, Faisalabad,

Pakistan

Dr. Aamir Zeb Shaikh

NED UET, Karachi,

Pakistan

Dr. Muhammad Adil Ansari

OUEST, Larkana,

Pakistan

Dr. Sohail Khokhar

QUEST, Nawabshah,

Pakistan

Dr. Ehsan Ahmed Buriro

QUEST, Larkana,

Pakistan

Dr. Abdul Karim shah

Dawood UET, Karachi,

Pakistan

Dr. Mohsin Shaikh

QUEST, Larkana,

Pakistan

Dr. Nazar Hussain Phulpoto

OUEST, Nawabshah,

Pakistan

Dr. Zahidullah

CECOS University of IT and ES,

Peshawar, Pakistan

Dr. Syed Kamran Sami

BUITEMS, Quetta,

Pakistan

Dr. Muhammad Yousef

Gomal University, D. I. Khan,

Pakistan

Dr. Tehseen Jawaid

AERC, University of Karachi,

Karachi, Pakistan

Dr. Ali Raza Shah

Balochistan UET, Khuzdar,

Pakistan

EDITORIAL REVIEWER BOARD

Dr. Osama Yousaf ababneh

Zarqa University, Zarqa, Jordon

Dr. Muhammad Adil Ansari

QUEST, Larkana, Pakistan

Dr. Hazlina Binti Hamdan

Universiti Putra Malaysia, Serdang, Malaysia

Dr. Imdadullah Thaheem

DGIST, Daegu, South Korea

Dr. Muhammad Adil Zehri

P&D, Balochistan,

Pakistan

Dr. Imran Ali

Datacom (pvt) Ltd, Australia

Dr. Emrah Evren kara

Düzce University, Düzce, Turkey

Dr. Ahmet Ocak

Ağrı İbrahim Çeçen University, Ağrı, Turkey

Dr. Ali Kashif Bashir

University of Faroe Islands, Tórshavn, Faroe Island

Dr. Safdar Hussain Bouk

DGIST, Daegu, South Korea

Dr. Ajaz Bashir Janjua

HMC, Taxila, Pakistan

Dr. Usman Azhar

BUITEMS, Quetta,

Pakistan

Dr. Faisal Ahmed

CEME NUST, Islamabad,

Pakistan

Dr. Tipu Sultan

University of M&T, Lahore,

Pakistan

Dr. Gul Agha

Illinois University Urbana Champaign,

Ili, USA

Dr. Hafeez-ur-Rehman Memon

Balochistan UET, Khuzdar,

Pakistan

Dr. Safeeullah Soomro

AMA International University,

Salamabad, Bahrain

Dr. Syed Zahoor Ul Haque

Caledonian College of Engineering,

Muscat, Oman

Dr. Javed Ali

Caledonian College of Engineering,

Muscat, Oman

Dr. Din Muhammad

University of Wollongong,

Wollongong, Australia

Dr. Dileep Kumar

University of Suwan, Suwon,

South Korea

Dr. Nawab Faseeh Qureshi

Sungkyunkwan university, Seoul,

South Korea

Dr. Onur Saldir

Van Yüzüncü Yıl University, Van,

Turkey

Dr. Muhammad Arsalan Shehzad

Georgia Institute of Technoology,

Atlanta, USA

Dr. Syed Chattan Shah

Hankuk University of Foreign Studies,

Seoul, South Korea

Dr. Muhammad Asim

University of Karachi, Karachi,

Pakistan

Dr. M. Hussain Mahmood Mann

GC University, Faisalabad,

Pakistan

Dr. Aamir Zeb Shaikh

NED UET, Karachi,

Pakistan

Balochistan Journal of Engineering & Applied Sciences, Volume 2, No. 2, December 2019

VIII

Dr. Ramesh Kumar Dawood UET, Karachi,

Pakistan

Dr. Feroz Ahmed Soomro

QUEST, Larkana,

Pakistan

Dr. Shafiullah Soomro

QUEST, Larkana,

Pakistan

Dr. Imtaiz Ahmed Halepoto

QUEST, Nawabshah,

Pakistan

Dr. Aziz Ahmed Memon

Sukkur IBA University,

Sukkur, Pakistan

Dr. Muhammad Asim

Sukkur IBA University,

Sukkur, Pakistan

Dr. Saqib Siddiquie

BUITEMS, Quetta,

Pakistan

Dr. Irfan Ali Bacho

Mehran UET, Jamshoro,

Pakistan

Dr. Aftab Hameed Memon

QUEST, Nawabshah,

Pakistan

Dr. Tehseen Jawaid

AERC, University of Karachi,

Pakistan

Dr. Muhammad Zahid

Dawood UET, Karachi,

Pakistan

Dr. Ghulamullah Kakar

BUITEMS, Quetta,

Pakistan

Dr. Abdul Qudoos

Balochistan UET, Khuzdar,

Pakistan

Dr. Syed Saad Azhar

PETRONAS (UTP),

Perk, Malaysia

Dr. Sohail Khokhar

QUEST, Nawabshah,

Pakistan

Dr. Ehsan Ahmed Buriro

QUEST, Larkana,

Pakistan

Dr. Abdul Karim shah

Dawood UET, Karachi,

Pakistan

Dr. Mohsin Shaikh

OUEST, Larkana,

Pakistan

Dr. Nazar Hussain Phulpoto

QUEST, Nawabshah,

Pakistan

Dr. Saeed Ahmed Abro

Sukkur IBA University, Sukkur,

Pakistan

Dr. Syed Kamran Sami

BUITEMS, Quetta,

Pakistan

Dr. Muhammad Ali Abro

Mehran UET, Khairpur Mir's,

Pakistan

Dr. Muhammad Yousef

Gomal University, D.I. Khan,

Pakistan

Dr. Ghazala Nawaz

Kohat University of S&T, Kohat,

Pakistan

Dr. Zahidullah

CECOS University of IT and ES,

Pakistan

Dr. Abdul Malik Tareen

University of Balochistan, Quetta,

Pakistan.

DESIGNED BY

Architect Farzana Ali

SECRETARY BJEAS

Engr. Farhan Ahmed Magsi



TABLE OF CONTENTS



Volume 2 No. 2 December 2019

1. Factors Influencing the Adoption of E-procurement in the Construction Industry of Pakistan. A case Study of the Public Sector...... Sajid Ali, Nafees Ahhmed Memon, Muhammad Aslam Laghari, Farhad Ali, Saeed Ahmed 2. Effectiveness Addressing Gender Mainstreaming Role in Agricultural Extension Services for Rural Poverty Reduction in Balochistan, Pakistan......6 Ahmed Ali Mengal, Abdullah Dostain, Shahida Alizai, Tamoor Khan Baloch, Samina Mengal 3. A-Case Study: Intake of the Bunap River Spring for the Regional Water Supply of Kharan Saeed Ahmed, Sharafuddin, Farhan Ahmed Magsi, Ahmed Ali Mengal, Muhammad Asim, Naseebullah Mengal, Gul Zaman 4. Comparative Analysis of Professional Competencies Needed by Public and Private Extension Field Staff in Balochistan, Pakistan......20 Ahmed Ali Mengal, Abdul Gaffar, Mujeeb-Ur-Rehman Mengal, Sher Azam, Muhammad Nadeem, Saeed Ahmed 5. Effect of Concrete Specimen size and Shape on the Compressive Strength of Marjan Gul, Muhammad Habib, Naik Muhammad, Zafar Baloch, Saeedullah Jan1, Inam-Ul-Haq Muhammad Muneeb Ahmed, Irfan Ali, Aslm Zaib, Mumtaz Ahmed, Rukia Magsi, Muhammad Ahmer Igbal Khan 7. Assessment of Drinking Water Quality from Source to Destination.......41 Mohammad Asim, Mujeeb Ur Rehman, Irfan Khan, Mehr UnNisa, Imdad Ali, Saeed Ahmed 8. Towards Development of an Image Processing Based Autonomous Firefighting Robot......46 Salman Anwar, Yasir Anwar, Naveed Anwar, Abdul Raziq, Shabbar Naqvi, Mohammad Idrees,

Fiaz Notani, Jalal shah, Sohrab Khan

Pervez Ali Shah, Suhail Ahmed Soomro, Abdul Rehman Memon



10.	Amalgamation of Wind, Tidal and Solar Energies to Generate Electricity
11.	Techno-Economic Evaluation of Rooftop Solar PV for University of Turbat
12.	Removal of Cadmium through Phytoremediation and Bioremediation Involving Microbes/Bacteria: A Review
13.	Cyber Security of Oil and Gas over the Cloud
14.	Equivalence between Adomian decomposition method and modified homotopy perturbation technique by using auxiliary operator <i>T</i>
