

## CURRICULUM VITAE

### DR. MUHAMMAD SOHAIL

Date of Birth May 13<sup>th</sup>, 1977  
Nationality Pakistani  
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#### Websites' URLs

UoB <http://www.uob.edu.pk/departments/Physics/Faculty.php>

#### Research Links

Google Scholar [https://scholar.google.co.th/citations?hl=en&user=hBp8roMAAAAJ&view\\_op=list\\_works&sortby=pubdate](https://scholar.google.co.th/citations?hl=en&user=hBp8roMAAAAJ&view_op=list_works&sortby=pubdate)  
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ORCID <https://orcid.org/my-orcid?orcid=0000-0001-7186-4672>

## EDUCATION

Degree	Year	Subject	University
Doctor of Philosophy (Ph.D.)	2014	Telecommunications, (TC)	Asian Institute of Technology, Bangkok, Thailand
Master of Science (MS/M.Phil.)	2008	Semiconductor Physics	Balochistan University of Information Technology Engineering and Management Sciences
Master of Science (M.Sc.)	2004	Physics (2 <sup>nd</sup> Position)	University of Balochistan, Quetta, Pakistan
Bachelor of Science (B.Sc.)	1998	Physics, Mathematics, Chemistry	University of Balochistan, Quetta, Pakistan

## AREAS OF EXPERTISE

- Computer/Programming:

MATLAB, Octave, PSPICE, LTSPICE, ArcView, ASAP, HFSS, VHDL, Verilog and Tracepro  
Latex: Texniccenter and Miktex for latex based platform.

Windows based computing platform: MS Office, Word, Excel, PowerPoint, and Visio.

- Hardware: Altera and Xilinx FPGA

## **RESEARCH INTERESTS**

- Optical Wireless Communication(OWC)
- Material Science
- Optoelectronics
- Digital and Analog Circuit Design
- Concentrator design, PV and PVT systems

## **COURSES DEVELOPED**

### **Courses Developed for M.Phil./Ph.D. Programs at Department of Physics University of Balochistan**

- Optical Fiber Communications
- Mathematical Methods of Physics
- Optoelectronics
- Signals and Systems Analysis
- Digital and Analog Circuit Design
- Cellular Mobile Communication
- Signal Processing

### **Courses Developed for BS Programs at Department of Physics University of Balochistan**

- Electronics-I
- Communication Systems
- Differential Equations
- Electronics-II
- Experiments in Electronics
- Nuclear Physics
- Classical Mechanics

## **PROFESSIONAL EXPERIENCE**

- **Assistant Professor** at Department of Physics, University of Balochistan Quetta, Pakistan (January to till date )
- **Assistant Professor** at Department of Physics, University of Balochistan Quetta, Pakistan (08-2015 to December 2023)

- Responsibilities include: 1. teaching courses such as differential equations, communication systems, mathematical methods, electronics optoelectronics, optical fiber communication, signals and systems, digital electronics, mathematical methods.  
2. Research supervision of MS/PhD and BS
- **Lecturer (Physics)** at University of Balochistan Quetta, Pakistan (08-2004 to 08-2015)  
Responsibilities included: taught Physics courses such as communication systems, classical Mechanics, Electronics to Master's students and supervising research work.
- **Lecturer (Physics)** at Garrison Academy, Quetta (2003-2004)  
Responsibilities included: taught descriptive and experiments courses to under graduate level.
- **Lecturer (Physics)** at Bahria Foundation College, Quetta (2002-2003)  
Responsibilities included: taught descriptive and experiments courses to under graduate level.

### Administrative Experience

- Chairperson, Department of Physics, March 2025 to till date.
- Manager ORIC (Office of Research, Innovation and Commercialization), March 2022 to till Date
- Coordinator of Post graduate (Ph.D./MS program) Program of Study
- Coordinator of Undergraduate (M.Sc.) Program of Study, 2015-2018
- Member of the Department Admission Committee (DAC)
- Member of the Department Semester Committee (DSC)
- Member of the Faculty Board of Study (2018-2022)
- Student Advisement Undergraduate office (2023-2024)

### THESIS/DISSERTATION

#### Ph.D. in Telecommunications (2014)

- **Thesis Title:** Design and Analysis of Current Modulation on LEDs in OFDM Based Indoor Optical Wireless Communications
- **University:** Department of Telecommunications, Asian Institute of Technology, **Thailand**  
**(3.5/4.00 CGPA)**

#### MS in Semiconductor Physics (2008)

- **Thesis Title:** Dispersion loss in Photonic Crystal Fibers
- **University:** Faculty of Information and Communication Technology, BUIITEMS, Quetta, Pakistan

### PUBLICATIONS

## 2025

1. Shahbadeen & Sohail, M., 2025. Non-Linearity Measurement in Low Profile Compound Parabolic Concentrator (CPC) Photovoltaic Thermal (PVT) System. *European Academic Research*, XIII (1), 1561-156, 12-16.

## 2024

2. Bakhsh, S., Aslam, S., Khalid, M., Sohail, M., Zafar, S., Wadood, S. A., & Iqbal, M. A. (2024). Can neutral clusters: a two-step G0W0 and DFT benchmark. *Beilstein Journal of Nanotechnology*, 15(1), 1010-1016.  
**(W–Category IF = 3.1)**
3. Bakhsh, S., Khalid, M., Aslam, S., Sohail, M., Iqbal, M. A., Ikram, M., & Morsy, K. (2024). Investigating structural and electronic properties of neutral zinc clusters: a G0W0 and G0W0G0 (1) benchmark. *Beilstein Journal of Nanotechnology*, 15(1), 310-316. **(W–Category IF =3.1)**
4. Khan, N., Sohail, M., and Kasi, J. (2024). Low profile compound parabolic concentrator. *European Acadmic Research*, XI(12), 1561-1565.
5. Saifullah, Sohail, M., and Bokhari, M. (2024). Dual-band Microstrip Patch Antenna with Optimized Coverage and Bandwidth for WLAN Application. *European Acadmic Research*, XII(2), 114-119.

## 2023

6. Iqbal, M. A., Bakhsh, S., Ikram, M., Sohail, M., Islam, M. R., Manoharadas, S., & Choi, J. R. (2023). Investigations on the structural and optoelectronic characteristics of cadmium-substituted zinc selenide semiconductors. *Frontiers in Chemistry*, 11, 1299013.) **(W–Category IF =3.1)**
7. Khalid, M., Wei, J., Bakhsh, S., Qaisrani, M. A., Sohail, M., and Fang, J. (2023). Comparative optical performance investigation of Cross Compound Parabolic Concentrators designed with the elimination of multiple reflections principle. *Solar Energy*, 258, 253-269 **(W–Category IF = 7.2)**
8. Khan, M., Iqbal, M. A., Malik, M., Hashmi, S. U. M., Bakhsh, S., Sohail, M., and Choi, J. R. (2023). Improving the efficiency of dye-sensitized solar cells based on rare-earth metal modified bismuth ferrites. *Scientific Reports*, 13(1), 3123 **(W–Category IF =3 9)**
9. Sajid, M. M., Zhai, H., Anwar, N., Shad, N. A., Sohail, M., Javed, Y., and Lai, W. C. (2023). Synthesis, Structural Characteristics, and Photocatalytic Performance of Zn<sub>3-x</sub>Bix (VO<sub>4</sub>)<sub>2</sub> Heterostructures. *Surfaces and Interfaces*, 102658 **(W–Category IF = 6.137)**
10. Iqbal, M. A., Malik, Bakhsh, S., Sohail, M., Arellano-Ramírez, I. D., & Morsy, K. (2023) Theoretical Insights into Pressure-Driven Stability and Optoelectronic Response of Cd<sub>0</sub>.<sub>75</sub>Zn<sub>0</sub>.<sub>25</sub> Alloy for Blue–Violet Display. *Advanced Theory and Simulations*, 2300270 **(W–Category IF = 3.3)**
11. Khaliq, A., Sohail, M., Bokhari, M. and Kasi, J.K. (2023). Low Cost Compound Parabolic Concentrator for the Photovoltaic System. *European Academic Research*, X(12), 4271-4277

## 2022

12. Ullah, H., **Sohail, M.**, and Bokhari, M. (2022). Dynamic range of LED in optical OFDM for PAPR performance analysis. *Optical and Quantum Electronics*, 54(11), 742 (**W-Category IF = 3.0**)

## 2021

13. Ayaz, M., Kasi, J. K., Kasi, A. K., Bokhari, M., **Sohail, M.**, & Ullah, S. (2021). Natural Plant Trifolium Pratense, Mirabilis Jalapa and Bassia Scoparia Extract Used as Photosensitizer in Dye-Sensitized Solar Cell. *Iranian Journal of Chemistry and Chemical Engineering*, 40(3), 872-880. (**W-Category IF = 1.7**)
14. Ghafoor, S., **Sohail, M.**, (2021). Optimizing the Coverage Range of LED Based VLC Receiver *Journal of Physics and Materials Science*, 04-1(2021) 24-27
15. Khan, P., **Sohail, M.**, (2021). Flat-Plate Collector Design with Differential Temperature Controller for PV/T Applications, *Journal of Physics and Materials Science*, 04-1(2021) 1-4
16. Qurat-ul-ain, **Sohail, M.**, (2021). Optimized RFID-Tag Antenna for Metallic Objects, *Journal of Physics and Materials Science*, 04-1(2021) 30-33
17. Taran, S., **Sohail, M.**, Bokhari, M., Kasi, J. K., Kasi, A. K., (2021). Bidirectional Hybrid Optical Wireless Communication System For Indoor Networks, *Journal of Physics and Materials Science*, 04-1(2021) 1-
18. Rameez, M., Kasi, A, K, Kasi, J., K., Bokhari, M. and **Sohail, M.**, "Design and Development of Quadcopter for Counter Terror Attack", *Journal of Physics and Materials Science* 3:1 (2021) 6-11

## 2020

19. Ajmal, S., Bokhari, M., Kasi, A. K., Kasi, J. K., & **Sohail, M.** (2020). Effect of Titanium Substrate Surface on the Titanium Oxide Membrane Pore Diameter, Formed upon Anodization in the Presence of Fluoride Ions. *Theoretical and Experimental Chemistry*, 56, 26-32. (**W-Category IF: 1.3**)
20. Khan, I., **Sohail, M.**, Bokhari, M., Kasi, A.K., Kasi, J.K., (2020), Assessment of Background Radiation Level in Children Hospital and Provincial Sandman Hospital Quetta City, *Journal of Physics and Materials Science*, 03:01 2020 (42-48)

## 2019

21. Masood-ur-Rehman, A. K. K., Kasi, J. K., Bokhari, M., & **Sohail, M.** (2019). 7. Design and development of sEMG Prosthetics for recovering amputation of the human hand. *Pure and Applied Biology (PAB)*, 8(3), 1935-1942. (**Y-Category**)
22. Khan, S., **Sohail, M.** & Bokhari, M. (2019). Design of Power Line Modem for PLC Integrated with VLC. *Scientific Journal of Mehmet Akif Ersoy University*, Aralık , 102-110 . Retrieved from <https://dergipark.org.tr/en/pub/sjmakeu/issue/51356/632734>

23. Aleena, **Sohail, M.**, Bokhari, M., Kasi, A.K., Kasi, J.K., (2019), "Noise Analysis of Visible Light Transmission System using White LEDs", *Journal of Physics and Materials Science*, 01(2018) 30-37

## **2018**

24. Durrani, H., J. Kasi, **Sohail, M.**, Bokhari, M., and A. Kasi, (2018). Implementation of unipolar OFDM based VLC transmission system under dimming constraint for high speed data through FPGA. *J. Comput. Commun. Instrum. Engg.*, 5(1), 14-17

## **2017**

25. Nasar, A. W., **Sohail, M.**, Bokhari, S. M. A., Kasi, J. K., & Kasi, A. K. (2017). Implementation of visible light communication based system for indoor positioning. *MATTER Int. J. Sci. Technol*, 3, 67-80
26. Latif, A., & Sohail, M. (2017). Design and analysis of PPM based visible light communication system with dimming support. *Int J Sci Technol*, 3, 178-92.

## **2016**

27. Bokhari, M., **Sohail, M.**, Kasi, J. K., & Kasi, A. K. (2016). Performance analysis of passive optical networks with energy saving through the integrated sleep mode. *Optical Switching and Networking*, 21, 16-30 (**W-Category IF = 2.2**).
28. Kasi, J. K., Kasi, A. K., Bokhari, M., and **Sohail, M.** (2016). Characterization of cracks in tubular anodic aluminum oxide membrane. *Am. J. Condens. Matter Phys*, 6, 36-40
29. Bokhari, M., J. K. Kasi, A. K. Kasi, and Sohail, M., (2016). Sleep Mode Adaptive to Traffic for Energy Efficient EPON. *Bahria University Journal of Information and Communication Technologies*, 9(1), 1-7 (**Y-Category**).

## **2014**

30. Sohail. M, Saengudomlert .P, Sterckx K. L., (2014). Performance analysis of dynamic range limited DCO-OFDM, ACO-OFDM and Flip-OFDM transmissions for Visible Light Communication." *IEICE Transactions on Communications*, 97(10), 2192-2202 (**W-Category IF= 0.78**).

## **2012**

31. Ashraf, W., Afzulpurkar, N., **Sohail, M.**, and Tayyaba, S., (2012). Performance Analysis of Commercially Available Piezoelectric Based Energy Harvester. *Bahria University Journal of information and Communications Technologies* 5, no. 1, 19-22 (**Y-Category**)

## **PAPERS PRESENTED AT CONFERENCES with ABSTRACT PUBLICATIONS**

1. Jafar Khan Kasi, Muhammad Ayaz, Ajab Khan Kasi, Muzamil Bokhari and **Muhammad Sohail** "Eventually Dye Sensitized Solar Cell Moving Towards Naturel", 314th International conferences on Engineering and Natural Science (ICENS) 1st - 2 nd January, 2018 Kuala Lumpur, Malaysia
2. Huzaifa Durrani, Jafar Khan Kasi, **Muhammad Sohail**, Muzamil Bokhari and Ajab Khan Kasi, Implementation of unipolar OFDM based VLC transmission system under dimming constraint for high speed data through FPGA, 14th international conference on recent trends in Engineering and technology (RTET-2018) Pattaya, Thailand, April 24-26, 2018
3. Syed Najeebullah, Ajab Khan Kasi, Jafar Khan Kasi, Muzamil Bokhari, **M. Sohail**, Design, Development and Control of Long Range Quadcopter, 1st International conference on material science and Nanotechnology 2018 (ICMSN-2018), Quetta, Pakistan, September 3-4, 2018
4. Hikmatullah, Ajab Khan Kasi, Jafar Khan Kasi, Muzamil Bokhari, **Muhammad Sohail**, Effect of TiO<sub>2</sub> Nanotubes Length on the Performance of DSSCs on Ti Substrate, 1st International conference on material science and Nanotechnology 2018 (ICMSN-2018), Quetta, Pakistan, September 3-4, 2018
5. Jafar Khan Kasi, Sana Idrees, Ajab Khan Kasi, Muzamil Bokhari and **Muhammad Sohail** "Microchannel Based Filter Fabrication Using Anodic Aluminum Oxide (AAO) Membrane", International Conference on Chemical and Biochemical Engineering (ICCBE) 5th -6 th December, 2018, Krabi, Thailand
6. Sabiha Ajmal, Muzamil Bokhari, Ajab Khan Kasi, Jafar Khan Kasi, **Muhammad Sohail**, Desalination of Dye from Water through Nanoporous TiO<sub>2</sub> , 1st International conference on material science and Nanotechnology 2018 (ICMSN-2018), Quetta, Pakistan, September 3- 4, 2018
7. **M. Sohail**, K. L. Sterckx and P. Saengudomlert, "Linear current modulation with feedback on Light Emitting Diodes in Optical Wireless Communication"Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology (ECTI-CON), 2016, pp 1-5.
8. Jafar Khan Kasi, Ajab Khan Kasi, Muzamil Bokhari and **Muhammad Sohail**, Characterization of Cracks in Tubular Anodic Aluminum Oxide Membrane, the World Conference on Engineering and Applied Sciences (WCEAS-2016), Kuala Lumpur, Malaysia, May 28-29, 2016.
9. Samiullah, Ajab Khan Kasi, Jafar Khan Kasi, Muzamil Bokhari and **Muhammad Sohail**, "ZnO nanoballons based perovskite solar cell", 2nd conference on Frontiers of Nanoscience and Nanotechnology, Islamabad, Pakistan. September 08-10, 2015.
10. Moiz-uddin, Ajab Khan Kasi, Jafar Khan Kasi, Muzamil Bokhari and **Muhammad Sohail**, "Design and development of microinduction device for charging energy storage components in microrobots ", 2nd conference on Frontiers of Nanoscience and Nanotechnology, Islamabad, Pakistan. September 08-10, 2015.
11. Muhammad Latif, Ajab Khan Kasi, Jafar Khan Kasi, Muzamil Bokhari and **Muhammad Sohail**, "Fabrication and application of AAO tubular membrane system for water filtration", 2nd conference on Frontiers of Nanoscience and Nanotechnology, Islamabad, Pakistan. September 08-10, 2015.

12. Aminullah, Ajab Khan Kasi, Jafar Khan Kasi, Muzamil Bokhari and **Muhammad Sohail**, "Enhancement of Mechanical stability of AAO membrane by Al mesh structure" 2nd conference on Frontiers of Nanoscience and Nanotechnology, Islamabad, Pakistan. September 08-10, 2015.
13. Sabiha Ajmal, Ajab Khan Kasi, Jafar Khan Kasi, Muzamil Bokhari and **Muhammad Sohail**, "Fabrication and Application of TiO<sub>2</sub> membrane for drinking watertreatment", 2nd conference on Frontiers of Nanoscience and Nanotechnology, Islamabad, Pakistan. September 08-10, 2015.
14. Sumera Rafique, Ajab Khan Kasi, Jafar Khan Kasi, Muzamil Bokhari and **Muhammad Sohail**, "Fabrication of ZnO piezoelectric nanogenerator by utilizing Cu nanorods top electrode", 2nd conference on Frontiers of Nanoscience and Nanotechnology, Islamabad, Pakistan. September 08-10, 2015.
15. **M. Sohail**, K. L. Sterckx and P. Saengudomlert, "Linear analog current modulation on Light Emitting Diodes in Optical Wireless Communications," International Electrical Engineering Congress (IEECON), 2014 , Chonburi, 2014, pp. 1-4
16. N. Shrestha, **M. Sohail**, C. Vipavakit, P. Saengudomlert and W. S. Mohammed, "Demonstration of visible light communications using RGB LEDs in an indoor environment," International Conference on Electrical Engineering/Electronics Computer Telecommunications and Information Technology (ECTICON), 2010, Chaing Mai, 2010, pp. 1159-1163.
17. C. Vipavakit, **M. Sohail**, N. Shrestha, , P. Saengudomlert and W. S. Mohammed, "Creating a smart environment using optical wireless," Proc. SPIE 7743, 2010

## RESEARCH SUPERVISION

### Ph.D. Supervision

S. No	Student Name	Thesis (Dissertation) Title	Session	Status
1.	Hafeez ullah Bangulzai	Energy Efficient Optical OFDM With reduced Peak To Average Power Ratio PAPR	2017-21	▪ <b>Graduated</b>
2.	Alina Latif	Performance Analysis of Optical Ofdm Based on Dynamic Range, Energy Efficiency and Spectral Efficiency	2023- 2026	▪ <b>Enrolled</b>

### M.Phil. Supervision (as Supervisor)

S. No	Student Name	Thesis Title	Session	Status



1.	Alina Latif	Implementation Of PPM with Equal Width Pulse in Visible Light Communication with Dimming Support	2014-15	▪ <b>Graduated</b>
2.	Abdul Wahab Nasir	Implementation of VLC Based Localization System for Indoor Positioning	2014-15	▪ <b>Graduated</b>
3.	Gul Jahan	<u>Polarization division multiplexed system for VLC using RGB LEDs</u>	2016-17	▪ <b>Graduated</b>
4.	Nabeela Jomezai	Performance Investigation of Silicon Photo-voltaic solar panel with concentrator	2016-17	▪ <b>Graduated</b>
5.	Muhammad Ishaq	Assessment of Background Radiation Level in Children Hospital and Provincial Sandman Hospital Quetta City	2016-17	▪ <b>Graduated</b>
6.	Aleena Younus	Noise Analysis of Visible Light Transmission System using White LED	2016-17	▪ <b>Graduated</b>
7.	S. Samiullah Taran	Bidirectional Hybrid Optical Wireless Communication System For Indoor Networks	2017-18	▪ <b>Graduated</b>
8.	Sehrish Ghafoor	Optimizing the Coverage Range of LED based VLC Receiver	2018-20	▪ <b>Graduated</b>
9.	Qurat Ul Ain	Optimized RFID-Tag Antenna for Metallic Objects	2018-20	▪ <b>Graduated</b>
10.	Permina Khan	Flat-Plate Collector Design with Differential Temperature Controller for PV/T Applications	2018-20	▪ <b>Graduated</b>
11.	Sara Saleh	Effect on curvature of space by noncontact forces, lab experimental analogy to general relativity phenomena	2019-21	▪ <b>Graduated</b>
12.	Aasma Khaliq	Low Cost Compound Parabolic Concentrator for the Photovoltaic System	2018-20	▪ <b>Graduated</b>
13.	Ayeha Iftikhar	Analysis and Modeling of Optical Concentrator for Reliable Infrared Communication	2018-20	▪ <b>Thesis Submitted</b>
14.	Nadia Khan	Low profile compound parabolic concentrator	2021-22	▪ <b>Graduated</b>

15.	Sana ullah Rind	Optimized design of 2.4 GHz Microstrip Antenna for Wireless Local Area Network applications	2022-23	▪ <b>Graduated</b>
16.	Bibi Hawa	BER performance of unipolar OFDM schemes under dimming constraints	2022-23	▪ <b>Graduated</b>
17.	Saif ullah	Dual Band WLAN Antenna	2023-24	▪ <b>Graduated</b>
18.	Wali Muhammad	Low Profile Truncated Concentrator for Photovoltaic Applications	2023-24	▪ <b>Paper Submitted</b>
19.	Shahbadeen	Non-Linearity Measurement in Low Profile Compound Parabolic Concentrator (CPC) Photovoltaic Thermal (PVT) System	2023-24	▪ <b>Thesis submitted</b>
20.	Safia Khan	Green Hydrogen production using electrolysis via renewable energy	2024-2025	▪ <b>Paper Write up</b>
21.	Hoor bibi	Performance of Dynamic range limited optical OFDM schemes with error control coding	2024-2025	▪ <b>Paper Write up</b>
22.	Safia Bibi	Design of a Compact Dual Band Microstrip antenna for Blue Tooth/WLAN applications	2024-2025	▪ <b>Paper Write up</b>
23.	Sadia Kanwal	Noise Analysis and its mitigation in power line modem	2024-2025	▪ <b>Paper Write up</b>

### **M.Phil. Supervision (as Co-Supervisor)**

1.	Huzaifa Durrani	<i>Implementation of Unipolar OFDM based VLC Transmission System under Dimming Constraint for High Speed Data through FPGA</i>	2016-17	▪ <b>Graduated</b>
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2.	Sherzada Khan	Design of Power Line Modem for PLC Integrated with VLC	2016-17	▪ <b>Graduated</b>
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## **LANGUAGES**

- English
- Urdu
- Thai (spoken)

## **AWARDS, FELLOWSHIPS AND GRANTS**

- Best paper award, Conference, South Asian International Advances in Micro/Nanotechnology 2010.
- UOB-AIT Fellowship for PhD by University of Balochistan
- 2nd Position in M.Sc. Physics, Annual 2000.

## **FOREIGN EXPOSURE**

- Thailand (six years)
- China (2018)
- Dubai (2018)

## **REFERENCES**

- **Dr. Poompat Saengudomlert**, Associate professor, Bangkok University Center of Research in Optoelectronics, Communications and Computational Systems , Pathumthani, Thailand  
Email: [poompat.s@bu.ac.th](mailto:poompat.s@bu.ac.th)
- **Dr. Karel Stercks**, Associate professor, Bangkok University Center of Research in Optoelectronics, Communications and Computational Systems , Pathumthani, Thailand  
Email: [karel.s@bu.ac.th](mailto:karel.s@bu.ac.th)
- **Dr. Waleed Mohammad**, Associate professor, Bangkok University Center of Research in Optoelectronics, Communications and Computational Systems , Pathumthani, Thailand  
Email: [waleed.m@bu.ac.th](mailto:waleed.m@bu.ac.th)