

FAHIM AZIZ UMRANI, PhD

Associate Professor of Telecommunication Engineering | Electronics Engineer (PEC ELECTRO/7170)

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Google Scholar: <https://scholar.google.com/citations?user=Fd8bXLsAAAAJ&hl=en>

PROFESSIONAL PROFILE

Accomplished Associate Professor with 20 years of experience teaching and administering undergraduate and graduate courses, with proven expertise in grant writing, patent development, project and program management, and staff development. Skilled in outcome-based education (OBE) accreditation methods, including PEC, CIEC, and NCEAC frameworks. An effective communicator with strong planning, organizational, and negotiation skills, and a deep research background spanning optical and wireless communication, e-health and telemedicine, analog and digital signal processing, and photonics and sensor networks (wireless body area networks). Dedicated to nurturing the next generation of professionals, academics, and workforce leaders.

HIGHLIGHTS OF ACHIEVEMENTS

- Won 28 grants from national and international agencies including IEEE, Optica, Ignite, HEC, and SHEC; secured 2 patents; completed 15 certifications/courses; received 13 awards; and delivered 18 invited talks, guest lectures, and workshops.
- Supervised 4 PhD students, 24 ME/MS students, and 200+ undergraduate students; authored 43 journal papers, 41 conference papers, and 10 high-impact books and book chapters.
- Pioneer in establishing the first Optica (formerly Optical Society of America) Student Chapter in the Sindh Province of Pakistan, and continues to serve as its Advisor.
- Developed and implemented the MUET Attendance Management System, officially adopted in 2019, reducing campus attendance-update time from 18 days to a single click.
- Developed a VoIP-based IP PBX overlay solution for MUET, transforming the wired network into a wireless intercom system extending connectivity within and beyond campus using existing infrastructure.
- Member of the team awarded Mehran University of Engineering & Technology's first-ever patent.

CORE COMPETENCIES

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|--------------------------------|---------------------------|
| • Accomplished Researcher | • Curriculum Development |
| • Student Records Management | • University Standards |
| • Lesson Planning | • Academic Administration |
| • Projects & Grants Management | • Department Management |
| • Online Learning Tools | • Graduate Mentorship |
| • Outcome-Based Education | • Academic Publications |

EDUCATION

Ph.D., Electrical and Electronic Engineering — University of South Wales (Glamorgan), United Kingdom, 2010

Dissertation: Applications of Perfect Difference Codes in Fiber-Optics and Wireless Optical Code-Division Multiplexing/Multiple-Access Systems

Supervisor: Prof. Salah Obayya | *Duration:* April 2006 – February 2010

[View thesis record](#)

B.E., Electronics Engineering — Mehran University of Engineering & Technology, Pakistan, 2004

PROFESSIONAL WORK EXPERIENCE

Visiting Associate Professor Hyderabad Institute of Arts, Science & Technology, Pakistan	<i>Jan 2025 – present</i>
Associate Professor Mehran University of Engineering & Technology, Pakistan	<i>Feb 2012 – present</i>
Acting Chairman / Co-Chairman, TL Department Mehran University of Engineering & Technology, Pakistan	<i>2021 – 2024</i>
Co-Director, Institute of Information & Communication Technologies Mehran University, Pakistan	<i>Dec 2017 – Nov 2018</i>
Assistant Professor Mehran University of Engineering & Technology, Pakistan	<i>Feb 2011 – Feb 2012</i>
Lecturer Mehran University of Engineering & Technology, Pakistan	<i>Sep 2004 – Feb 2011</i>
Lab Lecturer Mehran University of Engineering & Technology, Pakistan	<i>Jul 2004 – Sep 2004</i>
Intern, Telematics Lab Department of Electronics & Telecommunication, Mehran UET, Pakistan	<i>Jun – Jul 2002</i>
<i>Two-month internship on analog and digital communication modules and microprocessor trainers.</i>	

MAJOR DUTIES & RESPONSIBILITIES AT MEHRAN UET

- **Teaching & Research:** Undergraduate and postgraduate levels.
- **Committee Membership:** Academic Council; Library Committee; Board of Faculty; Board of Studies; Program Committee; DMRC; FYP/Thesis Committee; Book Purchase Committee; Equivalence Committee; Course Development Committee; and Academic Council, Dawood University of Engineering & Technology.
- **Assessment & Invigilation:** Supervision and answer-sheet checking for examinations, including the Pre-Entry Test for Mehran UET, since 2005.
- **Lab In-Charge:** Project Lab, TL Department, MUET.
- **Class Advisor & Designated Student Counsellor:** For numerous student batches.
- **Curriculum Development:** B.E. Telecommunications; ME Telecom Engineering & Management; M.E. Communication Systems and Networks; MS Cyber Security; and PhD in Telecommunication Engineering.
- **Lab Demonstration:** Optoelectronics, fiber optics, cellular, AM/FM, radar, mobile and wireless communication, and microwave trainers.

COURSES TAUGHT

Postgraduate (18 courses)

Signals & Systems	Mobile & Wireless Communications
Emerging Wireless Networks	Human Computer Interaction
Wireless Sensor Networks	Data Communication & Networks
Advanced Digital Communication	IC Design & Manufacturing Technique
Wireless Networks	Modern Trends in Telecom & Information Superhighway
Optical Communication	Optical Communication Systems and Networks (ME & PhD)
Wireless Communication Systems	Vulnerability Assessment & Penetration Testing (PhD/MS)
Digital Communications	Database Security (MS)
Telecom Management	

Undergraduate (13 courses)

Communication Systems	Optoelectronics
Probability & Stochastic Processes	Fiber Optic Communication Systems
Amplifiers & Oscillators	Integrated Electronics
Spread Spectrum Communication	Introduction to Computing
Laser & Fiber Optics	Introduction to Information & Communication Technologies
Radar System Engineering	Operating Systems
Microprocessor & Embedded Systems	

RESEARCH SUPERVISION

PhD Students (4)

1. Attiya Baqai — Infra-Red (IR) Based Wireless Body Area Networks for Monitoring Vital Signs. Mehran University, Pakistan. Completed 2016. <https://pr.hec.gov.pk/jspui/handle/123456789/16904?mode=full>
2. Faisal Khan — Design, Analysis & Implementation of a LiFi System. Mehran University, Pakistan. Completed 2025.
3. Saima Hafeez — Research and Design of Intelligent Meta-Surfaces for Efficient Polarization Conversion and Radar Cross-Section Reduction in Next-Generation Radar Systems. Beijing University of Posts and Telecommunications, China. Completed 2025.
4. Syed Asad Ali — Security in Cooperative Communication Networks for 6G Wireless Communication. DHA Suffa University, Pakistan. Ongoing.

ME / MS / MPhil Students (24)

1. Sajjad Ali — PAPR Reduction Techniques for MC-CDMA. 2011.
2. Khakoo Mal — Migration of TDM Switches to IP-Based Softswitches C-5 in PTCL. 2011.
3. Waqas Soomro — Signal Processing & Statistical Texture Feature Extraction for Identification of Aquatic Inhabitants of Pakistan. 2012.
4. Syed Asad Ali — Performance Analysis and Latency Calculation of Cooperative Communication Protocols. 2013.
5. Riaz Soomro — Controlling the Ripple Levels of a Microstrip Coupled-Line Bandpass Filter for WiMAX Applications. 2013.
6. Bushra Shaikh — Spectrum Sensing in Dynamic Spectrum Access: Energy Detection vs. Blind Spectrum Sensing. 2013.
7. Anam Qureshi — Design of a Robust Neural-Network-Based Skin Detection Algorithm. 2014.
8. Murk Marvi — Design of a New Algorithm for Facial Feature Detection Based on the Golden Ratio ($\phi = 1.618$). 2014.
9. Faisal Khaskheli — Free-Space Optics as a Replacement for Microwave in Cellular Backhaul. 2015.
10. Maryam Saeed — Spreading Code Design for Adaptive NCSOFDM Systems Used with Dynamic Spectrum Access. 2015.
11. Saad Kalwar — Estimation and Suppression of Carrier Frequency Offset in LTE Uplink. 2015.
12. Usman Ayaz — Driver Distraction Detection for Vision-Based Advanced Driver Assistance Systems. 2016.
13. Navera Karim — Power-Efficient Modulation Schemes with Interference Cancellation for VLC. 2016.
14. Shadab Kalhoro — Matched-Filtering-Based Spectrum Sensing Technique for 4G Cellular Networks. 2017.
15. Leela Wanti Lohano — Power-Control BRAUS Scheme for Multiuser Cooperative Communication Networks. 2017.
16. Bilal Nizamani — High-Index Photonic Waveguides in Silicon Oxycarbide. 2018.
17. Vishal Kumar — Efficient Nano Antennas for Photonic Devices. 2019.
18. Abdul Karim Mirjat — Precision Agriculture & Crop Management System with Android Application and Web Development. 2019.
19. Faisal Dahri — Indoor Visible Light Communication Using LED as Optical Source and Detector in Transmitter and Receiver. 2019.
20. Talha Kaim Khani — Performance Analysis of a VLC-Based Optical Link Under Different Modulation Schemes. 2020.
21. Saqib Ahmed — ISM-Band FMCW Radar for Pedestrian Detection. 2020.
22. Abdul Bassit — Analyzing Indoor/Outdoor Environmental Effects with Varying Cell Size on 5G Millimeter-Wave Propagation. 2020.
23. Steve Azarsh — Campus Navigation & Fleet Management System Using GPS. 2021.
24. Abdullah — Information Display on the Surface of a Mirror with Enhanced Interactivity. 2022.

GRANTS & FUNDED PROJECTS (SELECTED, 30 TOTAL)

1. PKR 3,000,000 — Infra-Red (IR) Based Wireless Body Area Networks for Monitoring Vital Signs (PhD project, A. Baqai). Mehran University, Pakistan. 2016.
2. RMB 210,000 — Intelligent Meta-Surfaces with Efficient Polarization Conversion and Reduced RCS for Next-Generation Radar (PhD project, S. Hafeez). National Natural Science Foundation of China, No. 61821001. Ongoing.
3. PKR 48,317 — "IoT-Enabled Multipurpose Indigenous Cyber Lock for Fortifying Industrial and Cellular Communication BTS Sites," National ICT Grassroots Initiative Research Program (Project Code NGIRI-2024-25475). 2024.

4. PKR 66,125 — "Lightweight Drone," National ICT Grassroots Initiative Research Program. 2023.
5. PKR 85,425 — Annual maintenance grant for the Optica Student Chapter, MUET, Optica Foundation (formerly Optical Society of America). 2023.
6. PKR 2,026,296 — Sindh HEC Laboratory Strengthening grant for an Internet of Things (IoT) Laboratory. 2022.
7. PKR 40,000 — "Smart Audio Testing and Hearing Aid," Pakistan Engineering Council Final Year Design Project. 2022–23.
8. PKR 60,700 — "Remotely Monitored Low-Cost Portable Water Turbine," National ICT Grassroots Initiative Research Program. 2022.
9. PKR 60,650 — "Asterisk/Elastix-Based Open-Source VoIP PBX," National ICT Grassroots Initiative Research Program. 2021.
10. PKR 34,808 — "Joystick-Controlled Warfield Robotic Arm Vehicle," National ICT Grassroots Initiative Research Program; first position, National Idea Bank, city level, Hyderabad. 2021.
11. PKR 76,194 — "War-Field Spying Robot with Wireless Night-Vision Camera," National ICT Grassroots Initiative Research Program. 2020.
12. PKR 42,400 — "Solar Water Heating System," National ICT Grassroots Initiative Research Program. 2020.
13. PKR 79,500 — "Covert Electronic Communication Using DNA-Based Steganography," National ICT Grassroots Initiative Research Program. 2020.
14. PKR 533,000 — "Intruder Detection System for the Monitoring & Theft Prevention of 550/220 kV Transmission Towers," National Transmission & Dispatch Company, Pakistan. 2019.
15. PKR 54,442 — Establishment of the OSA Student Chapter, MUET, Optical Society of America. 2019.
16. PKR 79,500 — "Water Doctor — Smart Water Management System," National ICT Grassroots Initiative Research Program. 2019.
17. PKR 58,000 — "Design of a Prototype VoIP Network Using IP Phones and Analogue Phone Sets," National ICT Grassroots Initiative Research Program. 2018.
18. PKR 100,000 — Co-supervision of "Blood Sample Analysis Using Image Processing," Research Incubation in Public Universities (RINU). 2018.
19. PKR 68,400 — "Low-Cost E-Health Display Unit," National ICT Grassroots Initiative Research Program. 2018.
20. PKR 80,000 — "Cloud-Based Smart Patient Monitoring System," National ICT Grassroots Initiative Research Program. 2016.
21. PKR 28,000 — "Mobile Application for Locating, Tracking and Geo-Fencing University Points and Finding Vacant Seats," National ICT Grassroots Initiative Research Program. 2016.
22. PKR 36,000 — "Audible Frequency Generator for Different Age Groups," National ICT Grassroots Initiative Research Program. 2015.
23. PKR 23,350 — Travel grant, NUST & HEC, for invited talk at the International Symposium on Emerging Technologies in Optical Communications & Semiconductor Devices, NUST Islamabad. 2014.
24. US\$1,212 — "Mithi Telemedicine Network — Social ICT," IEEE R10 Humanitarian Technology Activities (IEEE SIGHT). 2013.
25. PKR 100,000 — "Android-Based Application for WBAN to Monitor BP, ECG and EEG," National ICT Grassroots Initiative Research Program.
26. PKR 500,000 — National ICT Outreach Program, in collaboration with Dr. Gul Muhammad (PI), UET Peshawar.
27. PKR 58,600 — HEC Pakistan, to organize a workshop on Simulating Wireless Communication Systems Using MATLAB/Simulink.
28. PKR 10,000 — RK Chemicals, for the undergraduate project "Intelligent Transportation System."
29. PKR 37,500 — University of Leeds, United Kingdom, travel funding to present a conference paper.
30. PKR 6.5 million — Faculty Development Program award to pursue PhD studies. 2006.

PUBLICATIONS

Peer-Reviewed Journal Papers (45)

1. Kehkashan Asma Memon, Muhammad Anus Shaikh, Muhammad Ibrahim Shaikh, Fiza Afroze Baloch, Qadir Dad Baloch, Fahim Aziz Umrani, Zartasha Baloch, "Performance Analysis of Blue Led-Based Visible Light Communication Using One-Dimensional Multidiagonal Codes", Vol. 8 No. 2 (2025): July– December Sukkur IBA Journal of Emerging Technologies – SJET 2025-12-18, <https://doi.org/10.30537/sjet.v8i2.1743> (Y-Category HEC approved Journal)

2. S. Hafeez, J. Yu, A. Majeed, F. A. Umrani and Y. Huang, "Optically transparent coding metasurface with dual-polarization conversion and RCS reduction characteristics," in IEEE Access, 15 November 2025, vol. 13, pp. 30779-30788, <https://doi.org/10.1109/ACCESS.2024.3498955> . (*Impact Factor: 3.4*)
3. Memon, K., Umrani, F. A., Baqai, A., & Shah, Z. S. (2024). Comparison of IoT Messaging Protocols: A novel Crop Specific Protocol for Wheat, Banana, and Chili. International Journal of Innovations in Science & Technology, 6(4), 2225–2238. <https://journal.50sea.com/index.php/IJIST/article/view/1121>
4. Kumar, S., F. A. Umrani, K. A. Memon, and M. S. Shah. "Energy-Based Cluster Head Selection in WSN". International Journal of Innovations in Science & Technology, vol. 6, no. 3, July 2024, pp. 996-1008, <https://journal.50sea.com/index.php/IJIST/article/view/939> .
5. Saima, Jianguo Yu, Fahim Aziz Umrani, Abdul Majeed, and Wang Yun. 2024. "A Broadband Meta-Absorber for Curved Terahertz Stealth Applications" Electronics 13, no. 15: 2966. <https://doi.org/10.3390/electronics13152966> (*Impact Factor: 2.6*)
6. Dahri, F. A., Umrani, F. A., Memon, K., Memon, F., & Umrani, A. W. (2024). Performance Analysis of Modulation Techniques for Indoor Free Space Optics. Journal of Applied Engineering & Technology (JAET), 8(1), 72–80. <https://doi.org/10.55447/jaet.08.01.151>
7. Hafeez, Saima, Jianguo Yu, Fahim Aziz Umrani, Yibo Huang, Wang Yun, and Muhammad Ishfaq. 2024. "Dual Polarization Conversion and Coding Metasurface for Wideband Radar Cross-Section Reduction" Photonics 11, no 5: 454. <https://doi.org/10.3390/photonics11050454> (*Impact Factor: 2.4*)
8. Hafeez, S.; Yu, J.; Umrani, F.A.; Yun, W.; Ishfaq, M. A Multiband and Multifunctional Metasurface for Linear and Circular Polarization Conversion in Reflection Modes. Crystals 2024, 14, 266. <https://doi.org/10.3390/cryst14030266> (*Impact Factor: 2.7*)
9. F. Khan, F. Umrani and A. Baqai, "An Enhanced Double Sided Pulse Interval Modulation (EDS-PIM) based SIM-OFDM for Light Fidelity (LiFi) Networks," in IEEE Communications Letters, Vol. 27, No. 10, Page(s): 2672 – 2676, 21 August 2023 , <https://doi.org/10.1109/LCOMM.2023.3306774> (*Impact Factor: 4.1*)
10. Faisal Khan, Fahim Umrani, Attiya Baqai, Muhammad Ijaz. A Novel Double-Sided Pulse Interval Modulation (DS-PIM) Aided SIM-OFDM for 6G Light Fidelity (LiFi) Networks. Electronics. 2022; 11 (21):3579. <https://doi.org/10.3390/electronics11213579> (*Impact Factor: 2.690*)
11. Memon, K.A., Umrani, A.W., Unar, M.A. et al. Design and Analysis of High-Speed Bottleneck-Free One-Dimensional OCDMA Based Gigabit Symmetric PON. Wireless Pers Commun 126, 3147–3165 (2022). <https://doi.org/10.1007/s11277-022-09857-x> (*Impact Factor: 1.20*)
12. Ahmed, Z, Panhwar, SQ, Baqai, A, Umrani, FA, Ahmed, M, Khan, A. Deep learning based automated detection of intraretinal cystoid fluid. Int J Imaging Syst Technol. 2021; 1- 16, 19th September 2021 (*Impact Factor: 2.0*) <https://doi.org/10.1002/ima.22662>
13. Steve Azarsh Ratti, Fahim Aziz Umrani, Zuhaibuddin Bhutto, Nasrullah Pirzada, Aftab Mirani, Ayaz Hussain, "Campus Navigation and Fleet Management Application by Using GPS", IJCSNS International Journal of Computer Science and Network Security, pp. 228-232, VOL.20 No.9, September 2020. DOI: 10.22937/IJCSNS.2020.20.09.28
14. Abdullah Memon, Syed Mudassir Kazmi, Attiya Baqai and Fahim Aziz Umrani, "Design and Experimental Analysis of Touchless Interactive Mirror using Raspberry Pi" International Journal of Advanced Computer Science and Applications (IJACSA), 11(5), pp. 478-485, 2020. (Scopus & ESCI Indexed) <http://dx.doi.org/10.14569/IJACSA.2020.0110562>
15. Saqib Ahmed, Fahim Aziz Umrani, And Abdul Bassit Surahio, "Analysis of Components and Circuit for FMCW Radar System", Gyancity Journal of Electronics and Computer Science, Volume 5, pp 1-11; <https://doi.org/10.21058/gjecs.2020.51001>
16. Baqai, A., Talpur, A., Umrani, F.A. et al. Design, Implementation and Evaluation of IR-Based Tagging System for RTLS. Wireless Pers Commun 113, 1345–1358 (2020). <https://doi.org/10.1007/s11277-020-07284-4> (*Impact Factor: 1.20*)
17. Faisal Ahmed Dahri, Fahim Aziz Umrani, Attiya Baqai, Hyder Bux Mangrio, "Design and implementation of LED-LED indoor visible light communication system," Physical Communication, 2020, Vol. 38, ISSN 1874-4907. <https://doi.org/10.1016/j.phycom.2019.100981> (*Impact Factor: 1.451*)
18. Vishal K.Doltani, Fahim A Umrani, Riaz A.Soomro, "Efficient Nano Antenna for Photonic Devices", IJASCSE, Volume 8, Issue 1, 2019 and page 1-6. <https://doi.org/10.48550/arXiv.1906.00954>
19. Shadab Kalhoro, Fahim Aziz Umrani, Mustahsan Ali Khanzada, and Liaquat Ali Rahoo, "Matched Filter Based Spectrum Sensing Technique for 4G Cellular Network", MUET Research J. of Eng. & Tech. (MURJ), Vol. 38, No. 4, pp. 973-978, October 2019. <https://doi.org/10.22581/muet1982.1904.10> (*X-Category HEC approved Journal*)

20. Ghulam Fiza Mirza, AW Umrani, Abdul Razzaque Jawad, Nafeesa Bohra, BS Chowdhry, Fahim Aziz Umrani, "Anti-fog System for High Speed Vehicles Using WI-FI", *Wireless Pers Commun* (Mar 2019), S.I: Technological Advancements in Wireless & Optical Communication Systems, Vol. 106, Issue 1, pp. 71–83 DOI: <https://doi.org/10.1007/s11277-019-06263-8> (*Impact Factor: 1.20*)
21. Faisal A. Dahri, Hyder Bux Mangrio, Attiya Baqai and Fahim Aziz Umrani "Experimental Evaluation of Intelligent Transport System with VLC Vehicle-to-Vehicle Communication", *Wireless Pers Commun* 106, 1885–1896 (2019) <https://doi.org/10.1007/s11277-018-5727-0> (*Impact Factor: 1.20*)
22. Hyder Bux Mangrio, Attiya Baqai, Fahim Aziz Umrani and Rashid Hussain, "Effects of Modulation Scheme on Experimental setup of R-G-B LEDs based Underwater Optical Communication", *Wireless Pers Commun* (Apr 2018), S.I: Technological Advancements in Wireless & Optical Communication Systems, <https://doi.org/10.1007/s11277-018-5718-1> (*Impact Factor: 1.20*)
23. Bilal Nizamani, F. A. Umrani, Faisal A. Memon, "Refractive Index Tunability in Silicon Oxycarbide for Photonic Waveguides", *International Journal of Advanced Studies In Computer Science And Engineering* (IJASCSE), Vol. 7, No. 4, pp. 19-24, ISSN: 2278-7917. 2018.
24. Riaz A. Soomro, F. A. Umrani, M. R. Anjum, B. S. Chowdhry, I. A. Lashari, "Optimal Design: Confining the Spurious Ripples of Coupled Line Microstrip Bandpass Filter for WiMax Links", *Sindh Univ. Research Journal*. (SURJ), Vol. 49, No. 2, pp. 357-362, 2017. (*X-Category HEC approved Journal*)
25. Attiya Baqai, Fahim Aziz Umrani and Bhawani Shankar Chowdhry, "A Novel Protocol with Patient and Node Identification for Optical WBAN with Inherent Security & Interference Rejection", *Int. Journal of Wireless Personal Communications*, Springer, Vol. 93, No. 3, pp. 1 – 14, April 2017. <https://doi.org/10.1007/s11277-017-4075-9> (*Impact Factor: 0.970*)
26. Attiya Baqai, Fahim Aziz Umrani and Bhawani Shankar Chowdhry, "LED Based Optical Wireless Communication System for WBAN", *MUET Research J. of Eng & Tech*. (MURJ), Vol. 35, No. 4, pp. 667-672, October 2016. (*X-Category HEC approved Journal*) <https://doi.org/10.22581/muet1982.1604.16>
27. Attiya Baqai, Fahim Aziz Umrani and Bhawani Shankar Chowdhry, "Experimental Study of Effect of Noise and Link Distance on Infra-Red Based WBAN", *Sindh Univ. Research Journal*. (SURJ), Vol. 48, No. 2, pp. 371-376, May 2016. (*X-Category HEC approved Journal*)
28. Attiya Baqai, Fahim Aziz Umrani and Bhawani Shankar Chowdhry, "Design, Development and Implementation of the IR Signalling Techniques for Monitoring Ambient and Body Temperature in WBANs", *MUET Research J. of Eng. & Tech*. (MURJ), Vol. 33, No. 3, pp. 365-371, October 2014. (*X-Category HEC approved Journal*)
29. Anam Qureshi, Murk Marvi and Fahim Aziz Umrani, "Locating Center Of Mass of Earth and Geostationary Satellites", *MUET Research J. of Eng. & Tech*. (MURJ), Vol. 33, No. 4, pp. 381-387, October 2014. (*X-Category HEC approved Journal*)
30. Fahim A. Umrani, Naveed A. Umrani, Abdul Waheed Umrani, Kehkashan A. Memon, and Imtiaz H. Kalwar, "Performance Analysis of Spectral Amplitude Coding Based OCDMA System with Gain and Splitter Mismatch", *J. Opt. Commun.*, Volume 34, Issue 3, Pages 247–253, July 2013, ISSN (Online) 2191-6322, ISSN (Print) 0173-4911, <https://doi.org/10.1515/joc-2013-0021>
31. Syed Asad Ali, Naveed A. Umrani, Fahim A. Umrani, "Performance Evaluation of Decode & Forward Cooperative Communication Protocol" *International Journal of Information Technology and Electrical Engineering* (ITEE), Vol. 1, No. 1, pp. 6 – 10, ISSN: 2306-708X, 2013. http://www.iteejournal.org/archive/vol1no1/v1n1_2.pdf
32. Muhammad Naveed Shaikh, Abi Waqas, B. S. Chowdhry, and Fahim A. Umrani, "Performance and Analysis of FSO link availability under different weather conditions in Pakistan" *New Horizons IEEE, Journal of the Institution of Electrical and Electronics Engineers Pakistan*, Vol. 76, pp. 3 – 7, 2012, ISSN 2226-3659.
33. Anam Qureshi, Murk Marvi, Fahim A. Umrani, B. S. Chowdhry, and A. Q. K. Rajput, "Center of Mass of Earth through Mass Balancing and Torque Balancing Latitude: An Analysis", *New Horizons IEEE, Journal of the Institution of Electrical and Electronics Engineers Pakistan*, Vol. 76, pp. 25 – 26, 2012, ISSN 2226-3659.
34. Kehkashan A. Memon, Fahim A. Umrani, A. W. Umrani and Naveed A. Umrani, "Throughput of Coded Optical CDMA systems with AND Detectors", *Journal of Optical Communication*; Vol. 33, Iss. 3, pp. 249–251, 2012. <https://doi.org/10.1515/joc-2012-0041>
35. Fahim Aziz Umrani, S. S. A. Obayya, "Manchester-Coded Modified-Legendre Codes for Spectral Amplitude Coding based optical code-division multiplexing system" *IET Optoelectronics*, Vol. 5, Iss. 2, pp. 93–98, 2011. (*ISI Indexed and Impact Factor 1.105*) <https://doi.org/10.1049/iet-opt.2010.0015>
36. Adil Ansari, Fahim A. Umrani and Kehkashan A. Memon, "Design and implementation of SONAR based obstacle detection and avoidance mobile robot", *MUET Research J. of Eng. & Tech*. (MURJ), Vol. 30, No. 3, pp. 371-382, Jul 2011. (*X-Category HEC approved Journal*)

37. Abdul Waheed Umrani, Ahsan Ahmed Ursani, and Fahim A. Umrani, "A Novel Beamforming technique for CDMA 2000 Wireless Communication: Performance Analysis", MUET Research J. of Eng. & Tech. (MURJ), Vol. 30, No. 1, pp. 65-74, Jan 2011. (*X-Category HEC approved Journal*)
38. Fahim A. Umrani, S. S. A. Obayya, "Application of Perfect Difference Codes in Wireless Infrared Systems" Int. J. Communications, Network and System Sciences, Vol. 3, No. 8, pp 674-678, Aug. 2010. (*ISI Indexed and Google Impact Factor 1.17*) <http://dx.doi.org/10.4236/ijcns.2010.38090>
39. Umrani A. W. and Guan Y. L., Umrani F. A., "Effect of steering array vector and angular probability distributions on Beamforming and transmit diversity systems in correlated fading channels" Progress in Electromagnetic Research, Vol. 105, pp 383-402, 2010. (*ISI Indexed and Impact Factor 3.745*) [dx.doi:10.2528/PIER10042902](http://dx.doi.org/10.2528/PIER10042902)
40. Umrani A. W. and Guan Y. L., Umrani F. A., "Transmit diversity versus Beamforming system in correlated fading channel", Int. J. Communications, Network and System Sciences, Vol. 3, No. 8, pp. 668-673, Aug. 2010. (*ISI Indexed and Google Impact Factor 1.17*) <http://dx.doi.org/10.4236/ijcns.2010.38089>
41. Fahim A. Umrani, Ahsan Ahmed Ursani, and Abdul Waheed Umrani, "Monte-Carlo Simulation for PDC-Based Optical CDMA System", MUET Research J. of Eng. & Tech. (MURJ), Vol. 29, No. 4, pp. 673-680, 2010. (*X-Category HEC approved Journal*)
42. Ahsan Ahmed Ursani, Fahim A. Umrani, and Abdul Waheed Umrani, "Unsupervised Texture Segmentation: Comparison of texture features", MUET Research J. of Eng. & Tech. (MURJ), Vol. 29, No. 4, pp. 653-660, 2010. (*X-Category HEC approved Journal*)
43. F. A. Umrani, B. S. Chowdhry, and Umrani A. W. "Simulation Design of Doppler Filter Bank (DFB) for Pulsed Doppler Radar to Measure Wind Velocities" MUET Research J. of Eng & Tech. (MURJ), Vol. 29, No. 1, pp. 91-98, Jan 2010. (*X-Category HEC approved Journal*)
44. Fahim A. Umrani, Mukhtiar Unar, Farzana Abro, "BER Performance Analysis of DS-CDMA Based Mobile Cellular System" MUET Research J. of Eng. & Tech.(MURJ), Volume 24, Number 3, pp. 191 – 196, July 2005. (*X-Category HEC approved Journal*)
45. Abdul Waheed, A. K. Baloch, Fahim A. Umrani, "Coherent BPSK Receiver for Multi-user CDMA Communication Systems over Auto-regressive Fading Channels: Performance comparisons" pp. 211 – 220 in the MUET Research J. of Eng. & Tech.(MURJ), Volume 24, Number 3, July 2005. (*X-Category HEC approved Journal*)

Submitted Journal Papers (3)

1. Umrani, F.A., Obayya, S.S.A. — "New Encoder/Decoder Design for Spectral Amplitude Coding-Based OCDM System with Common Zero Code," submitted to Journal of Optical & Fiber Communications Research.
2. Umrani, F.A., Obayya, S.S.A. — "Compact En/Decoder Design for Spectral Amplitude Coding-OCDM System Based on PDCs," submitted to International Journal on Wireless & Optical Communications.
3. Marvi, M., Qureshi, A., Umrani, F.A., Rajput, A.Q.K., Unar, M.A. — "A New Algorithm Based on the Golden Ratio ($\phi = 1.618$) for Facial Feature Detection with Reduced Search Space," submitted to Journal of Real-Time Image Processing.

Conference Papers (40)

1. Memon, K., Umrani, F. A., Baqai, A., & Syed, Z. S. (2023, March). A Review Based On Comparative Analysis of Techniques Used in Precision Agriculture. In 2023 4th International Conference on Computing, Mathematics and Engineering Technologies (iCoMET) (pp. 1-7). IEEE. <https://doi.org/10.1109/iCoMET57998.2023.10099182>
2. Komal Memon, Fahim Aziz Umrani, Attiya Baqai, Zafi Sherhan Syed, "Wireless Sensor Network Based Crop Monitoring System. A Review Based on Comparative Analysis of Techniques Used in Precision Agriculture.", International Conference on Business Management and Social Sciences (2023)
3. F. Naz, F. A. Umrani, Z. Ahmed Soomro, Z. Ali and S. Hafeez, "Comparative Analysis of Symmetrical and the Asymmetrical Golden ratio U Slot Microstrip Patch Antenna," 2020 3rd International Conference on Computing, Mathematics and Engineering Technologies (iCoMET), Sukkur, Pakistan, 2020, pp. 1-5. <https://doi.org/10.1109/iCoMET48670.2020.9073929>
4. T. K. Khani, H. B. Mangrio and F. A. Umrani, "Performance Analysis of VLC system using Commercially Available Components," 2019 22nd International Multitopic Conference (INMIC), Islamabad, Pakistan, 2019, pp. 1-4, <https://doi.org/10.1109/INMIC48123.2019.9022768>
5. Abdul Karim Mirjat, Fahim A. Umrani, Nayar Hussain Mirjat, Arsalan Hussain, Biby Sindhu, 2018. 'Precision Agriculture & Crop Management System with Android Application & Web Development'. In: Harijan, K. ed., Proceedings of the 5th International Conference on Energy, Environment and Sustainable Development, November 14-16, Mehran University of Engineering and Technology, Jamshoro, Sindh, Pakistan: Energy & Environment Engineering Research Group. Paper ID: EESD_2018_234. Available from: eesd.muett.edu.pk [Last access date 3 April 2019].

6. E. S. Asad Ali, G. Shahzad and F. Aziz Umrani, "End to End Latency incurred in Cooperative Communication System," 2019 21st International Conference on Advanced Communication Technology (ICACT), PyeongChang Kwangwoon_Do, Korea (South), 2019, pp. 21-25. <https://doi.org/10.23919/ICACT.2019.8701894>
7. Sateesh Kumar, Abdul Waheed Umrani, Fahim A. Umrani, "Energy based Cluster Head Selection in WSN", accepted for publication in The 21st International Symposium On Wireless Personal Multimedia Communications, November 25 – 28, 2018, Chiang Rai, Thailand
8. F. A. Umrani, F. Ahmed Dahri, A. W. Umrani and H. Bux Mangrio, "The Internet of LED: Indoor Visible Light Communication Using LED as Transmitter and Receiver," 2018 21st International Symposium on Wireless Personal Multimedia Communications (WPMC), Chiang Rai, Thailand, 2018, pp. 75-78. <https://doi.org/10.1109/WPMC.2018.8712906>
9. Attiya Baqai, Anum Talpur, Fahim Aziz Umrani, Inamullah Lakho, "Design and Implementation of Infra-Red Tagging system for Lab Inventory", Global Conference on Wireless and Optical Communications GCWOC'18, Malaga (Spain) during 1st-3rd October 2018.
10. S. M. A. Shah, F. A. Umrani, Shanzah Mohsin, and A. W. Umrani, "Critical Node Detection in WSN based on Energy Consumption", International Conference on Engineering Technologies, pp: 259 – 262, December 07-09, 2017, Konya, Turkey.
11. Leelawanti Iohana, F. A. Umrani, Irfana Memon, "BRAUS Scheme for Cooperative Communication Network", International Conference on Computing, Electrical and Electronics Engineering (ICCEEE 2017), 2-3 August 2017, Karachi.
12. Hyder B. Mangrio, Attiya Baqai, Fahim Aziz Umrani and Rashid Hussain, "Effects of Modulation Scheme on Experimental setup of R-G-B LEDs based Underwater Optical Communication", 2nd Global Conference on Wireless and Optical Communications GCWOC'17, Malaga (Spain) during 18th-20th September 2017.
13. Muhammad Naveed Shaikh, Salman Arain, Rafay Iqbal Ansari, Abi Waqas, and Fahim Aziz Umrani, "BER analysis of DPIM/DHPIM coded QPSK-OFDM based outdoor optical wireless communication", 2nd Global Conference on Wireless and Optical Communications GCWOC'17, Malaga (Spain) during 18th-20th September 2017.
14. Faisal A. Dahri, Hyder B. Mangrio, Attiya Baqai and Fahim Aziz Umrani "Experimental Evaluation of Intelligent Transport System with VLC Vehicle-to-Vehicle Communication", 2nd Global Conference on Wireless and Optical Communications GCWOC'17, Malaga (Spain) during 18th-20th September 2017.
15. Maryam Saeed, Abdul Waheed Umrani, Fahim Aziz Umrani, Syed M. Zafi S. Shah, Saadullah Kalwar, Naveed Ahmed, and Farhan Ahmed, "Interference cancellation and PAPR reduction using carrier interferometry codes for adaptive NC-SOFDM system used with dynamic spectrum access," 2017 Progress In Electromagnetics Research Symposium -Spring (PIERS), St. Petersburg, 2017, pp. 3473-3477. <https://doi.org/10.1109/PIERS.2017.8262361>. This paper received travel grant
16. B. Shaikh, S. M. Z. Shah and F. Umrani, "An unsigned autocorrelation based blind spectrum sensing approach for cognitive radio" 2016 International Conference on Open Source Systems & Technologies (ICOSST), Lahore, Pakistan, 2016, pp. 48-53. <https://doi.org/10.1109/ICOSST.2016.7838576>
17. Hyder Bux Mangrio, Attiya Baqai, Rashid Hussain, Fahim A. Umrani and Faisal Ahmed, "Experimental demonstration of RGB LED-based Underwater Optical Communication", in the IEEE 5th Student Conference on Engineering Sciences and Technology (SCONEST 2016), held on 14th and 15th December 2015 at Hamdard University Main Campus, Karachi. – Won Best Paper Award.
18. Navera Karim and Fahim A. Umrani, "Power Efficient Modulation Schemes for VLCs" in the IEEE 5th Student Conference on Engineering Sciences and Technology SCONEST 2016, held on 14th and 15th December 2016 at Hamdard University Main Campus, Karachi.
19. Kalwar, F. A. Umrani and M. Magarini, "Feedback method for estimation and compensation of carrier frequency offset in LTE uplink," 2016 International Conference on Computer, Information and Telecommunication Systems (CITS), July 6 – 8, Kunming, China, 2016, pp. 1-4. <https://doi.org/10.1109/CITS.2016.7546402> This paper received travel grant
20. Saadullah Kalwar, Maurizio Magarini, and Fahim A. Umrani, "Analysis of effect of Carrier Frequency Offset on performance of LTE Uplink" in The Third International Conference on Digital Information, Networking, and Wireless Communications (DINWC2015), vol., no., pp. 35-38, Moscow, Russia, on February 3-5, 2015. <https://doi.org/10.1109/DINWC.2015.7054213> - This paper received travel grant
21. A. Qureshi, M. Marvi, M. A. Unar and F. A. Umrani, "Performance analysis of skin classifiers in RGB and YCbCr color space," 17th IEEE International Multi Topic Conference 2014, Karachi, Pakistan, 2014, pp. 223-228, <https://doi.org/10.1109/INMIC.2014.7097341>

22. Kainat, Fahim A. Umrani, et.al, "Android based Wireless Body Area Network for Health care", 3rd International Multi-Topic Conference held at Mehran UET, Jamshoro, on 18-20th December 2013. Won Best poster award.
23. Muhammad Faheem, Saeed Rattar, Abid Mughal, Fahim A. Umrani, Zafi Shah, "Interpretation of Hand Gestures to learn Sign Language", 3rd International Multi-Topic Conference held at Mehran UET, Jamshoro, on 18-20th December 2013
24. Deepak, Fahim A. Umrani, et.al, "Mithi Telemedicine Network – Social ICT", 3rd International Multi-Topic Conference held at Mehran UET, Jamshoro, on 18-20th December 2013.
25. Aneel Kumar. Murk Hanif, Komal Manzoor, Zeeshan Mehmood, Mirza Mansoor and Fahim A. Umrani, "A Prototype Body Area Network to Monitor Temperature, Pulse Rate & Blood Pressure via Android Phones", 1st International Conference on Wireless Sensor Networks for Developing Countries, pp. 12 – 13, 24-26 April 2013.
26. Bushra Shaikh, Maryam Saeed, Fahim A. Umrani and Zafi S. Shah, "Use of Cognitive Radio to Improve Spectrum Utilization & Data Capacity", 1st International Conference on Wireless Sensor Networks for Developing Countries, pp. 32 – 34, 24-26 April 2013.
27. Sajjad A. Memon, Abdul Waheed Umrani, Fahim A. Umrani, and A. K. Baloch, "A Peak to Average Power Ratio Reduction of Multicarrier CDMA System Using Error Control Selective Mapping", Progress in Electromagnetic Research Symposium, in Marrakesh, Morocco, 20-23 March, 2011.
28. Muhammad Waqas Soomro, Kehkashan A. Memon, Fahim A. Umrani, "Identification of Aquatic Inhabitants Of Pakistan Using Image Feature Extraction", Poster paper International Multi-Topic Conference 2012 held at Mehran UET, Jamshoro 2012.
29. Kehkashan A. Memon, Fahim A. Umrani, B. S. Chowdhry, "Cubosomes: Bicontinuous Cubic Liquid Crystalline Nanostructured Particles for revitalizing natural Hair color", Poster paper International Multi-Topic Conference 2012 held at Mehran UET, Jamshoro 2012. Won Best Poster Award.
30. Kanchan Khiani, Maryam Saeed, Aisha Munir, Fahim A. Umrani, and Zafi S. Shah, "An SDR Based Implementation of Direct Sequence Spread Spectrum System Using TITMS320C6713 DSP", Poster paper International Multi-Topic Conference 2012 held at Mehran UET, Jamshoro 2012.
31. Zarlish Mushtaque, Aisha Khan, Bilal Shami, and Fahim A. Umrani, "Environmental Friendly Intelligent Transportation System", Poster paper International Multi-Topic Conference 2012 held at Mehran UET, Jamshoro 2012.
32. Fahim Aziz Umrani, S. S. A. Obayya, "A Novel Spreading Sequence for Code-Division Multiplexing Systems", Semiconductor & Integrated Optoelectronics Conference (SIOE), 29 – 31 March 2010, University of Cardiff, UK.
33. Fahim Aziz Umrani, S. S. A. Obayya, "Applications of Perfect Difference Codes in Wireless Infrared Systems", poster presentation in Semiconductor & Integrated Optoelectronics Conference (SIOE), 29 – 31 March 2010, University of Cardiff, UK.
34. Fahim Aziz Umrani, S. S. A. Obayya, "Compact Encoder design for Spectral-Amplitude Coding based Optical CDMA Systems", Semiconductor & Integrated Optoelectronics Conference (SIOE'09), 6 – 8 Apr 2009, University of Cardiff, UK.
35. Fahim Aziz Umrani, S. S. A. Obayya, "Performance Analysis of Perfect Difference Codes based SAC-OCDMA System", 4th Research Student Workshop, 12 Mar 2009, Glamorgan Business Center, UK.
36. M. A. Ansari and F. A. Umrani, "SONAR Based Obstacle Detection and Avoidance Algorithm," 2009 International Conference on Signal Acquisition and Processing, Kuala Lumpur, Malaysia, 2009, pp. 98-102, <https://doi.org/10.1109/ICSAP.2009.46>
37. Fahim Aziz Umrani, T. O'Farrell, S. Iezekiel, and I. Robertson "Impact of APD Mismatch in Optical Code Division Multiple Access Systems using Perfect Difference Codes", London Communication Symposium, 15 – 16 Sep 2006, United Kingdom.
38. Fahim Aziz Umrani, Abdul Waheed, B.S Chowdhry, "Information and Communication Technologies (ICT) for Rural Poverty Reduction", ITU World Conference 2006, Hong Kong, China.
39. Fahim Aziz Umrani, B.S. Chowdhry, S. Hafeez "Capacity and Coverage Improvements using Smart Antennas in Mobile Cellular Networks" NCITA pp 90 – 97, April 2005, BUITMS.
40. Fahim Aziz Umrani, NCITA "Analysis of GSM/GPRS with Channel Impairment" NCITA pp. 64 – 71, April 2005, BUITMS.

Patents (2)

1. Patent Application No. 124/2018 — "Information Display on the Surface of a Mirror with Enhanced Interactivity." Inventors: M. Kazmi, A. Baqai, A. Memon, F.A. Umrani. (Filed)
2. Patent No. 142695, granted by IPO Pakistan, 26 July 2018 — "A System of Secure Transmission of Physiological Data for Wireless Body Area Networks." Inventors: A. Baqai, F.A. Umrani, B.S. Chowdhry. (Equivalent to IF 2.0)

Books & Book Chapters (10)

1. Yar Khuwawar F, Shaikh T, Latif Memon A, Halepoto I, Umrani F, Ali Shah R, et al. Smart Detection: Reinforcement Learning for Network Intrusion Defense. Mastering Intrusion Detection for Cybersecurity. IntechOpen; 2025. Available from: <http://dx.doi.org/10.5772/intechopen.1008896>
2. Irfan Ahmed Halepoto, Mehran Muhammad Memon, Muhammad Arsalan Jalees Abro, Fahim Aziz Umrani, "Distributed energy storage systems for EV charging stations", Distributed Energy Storage Systems for Digital Power Systems, Elsevier, 2025, Pages 263-292, ISBN 9780443220135, <https://doi.org/10.1016/B978-0-443-22013-5.00008-3>.
3. Fahim. A. Umrani, Saima Mehar, A. W. Umrani, "Rudiments of Electronic Communication Systems: A Textbook", Published by HEC (Online).
4. Khaskheli Faisal Khan, Fahim Aziz Umrani and Attiya Baqai. "An Introduction to LiFi and Review of Prototypes Designed on FPGA and Other Hardware." Design, Implementation, and Analysis of Next Generation Optical Networks: Emerging Research and Opportunities. IGI Global, 2020. 69-99. Web. 12 Jun. 2019. <https://doi.org/10.4018/978-1-5225-9767-4.ch003>
5. Lab book on "Learning Communication systems with MATLAB", Co-edited with Ali Asghar, Saima Mehar, Naveed Umrani, Farhan Umrani and A. W. Umrani.
6. Book chapter, Navera Karim Memon & Fahim A. Umrani, "Review of VLC: Power Efficiency, Spectral Efficiency and Interference Cancellation" published in the book Elkhodr, M. (Ed.), Hassan, Q. (Ed.), Shahrestani, S. (Ed.). (2018). Networks of the Future., pp: 355 - 374 by CRC Press (Taylor & Francis Group), New York: Chapman and Hall/CRC, <https://doi.org/10.1201/9781315155517>
7. Lab Book on Optoelectronics, co-edited with Mr. Hyder Bux, et.al.
8. Lab book on Fiber Optics communication system, Co-edited with Mr. Hyder Bux, Dr. Aftab Memon & Dr. A. Waheed Umrani.
9. Book chapter Fahim A. Umrani, T. O'Farrell, and Abdul Waheed, "Performance Analysis of PDC-OCDMA System with APD Mismatch", International Multi Topic Conference (IMTIC '08), Communications in Computer and Information Science Springer-Verlag, pp 306 – 313, Vol. 20, 2008. ISBN: 978-3-540-898528-8.
10. Textbook on AUTOMATION & ROBOTICS, Co-edited with Ms. Tania Palijo and Dr. Mukhtiar A. Unar, and Dr. Bhawani S. Chowdhry ISBN 969-8680-09-8

ACADEMIC HONORS & AWARDS

1. Lead Ambassador, IEEE R10 Ad Hoc Committee on Entrepreneurship and Innovation — 2024.
2. Outstanding Performance Recognition Award, Department of Telecommunication Engineering, Mehran UET — 2023.
3. IEEE Certificate of Appreciation for extraordinary work in the IEEE SIGHT program — 2015.
4. High Achiever Award, 40th Anniversary Celebrations of the Department of Electronics Engineering, Mehran UET — 2012.
5. Star Laureate Award, "Who's Who in Pakistan," South Asian Publications, Jinnah Convention Center, Islamabad — 2012.
6. One of the youngest PhD recipients in the Province of Sindh — degree earned at age 28.
7. 33% partial tuition scholarship, University of South Wales (Glamorgan) — 2009.
8. Research Scholarship, Mehran University of Engineering & Technology — 2006–2010.
9. Supervisor of a research paper awarded 1st position, gold medal, and cash prize at the 26th IEEE Student Seminar — 2011.
10. Main author, Multi-Topic Student Conference of IEEE, Karachi — 2004.
11. Merit Scholarship, undergraduate studies — 2001–2004.
12. SSGC Limited, Pakistan Merit Scholarship — 1996–2003.
13. Recipient of numerous certificates for participation in co-curricular activities.

INVITED TALKS & GUEST LECTURES (SELECTED)

1. Resource Person, "Outcome-Based Education & Assessment (OBE&A) System" workshop, Isra University Hyderabad — Dec 2024.
2. Resource Person, "Mastering the Art of Interview Skills — Strategies for Success," IEEE ComSoc DUET Chapter — Nov 2023.
3. Trainer, "Pathway to Success: Interview Skills," Lincoln Corner Hyderabad — Nov 2023.
4. Resource Person, LaTeX workshops, National University of Modern Languages Hyderabad Campus and Optica Student Chapter MUET — Sep 2023.

5. Resource Person, OBE awareness sessions for CQI teams, Deans, and Academic Coordinators, DUET Karachi — Sep 2022.
6. Resource Person, "Workshop on Mail Merge — Utility with Microsoft Office," Mehran UET — Sep 2022.
7. Resource Person, "What is a Complex Engineering Problem (CEP)?" workshop, Mehran UET — May 2022.
8. Conducted OBE-based Final Year Project workshops for multiple student batches.
9. Talk, "Wonders of Light & Introduction to OSA Student Chapter MUET," Mehran UET — Jul 2019.
10. Invited Guest Speaker, "De-mystifying and Igniting the Passion of Research," fiber optic technology workshop, MUET — Dec 2016.
11. Invited Guest Speaker, PAF-KIET Karachi and SZABIST — 2015.
12. Invited Speaker, "Optical Body Area Networks: Inherently Secure and Interference-Free Wearable Intranet," International Symposium on Emerging Technologies in Optical Communications & Semiconductor Devices, NUST Islamabad — Aug 2014.
13. Resource Person, Project Management workshop, Dawood UET Karachi — Dec 2014.
14. Resource Person, IEEE SIGHT seminar, IEEE Pakistan Student/GOLD/WIE Congress — Oct 2013.
15. Resource Person, Faculty Orientation Seminar, Department of Telecommunication, Mehran UET — Feb 2013.
16. Talk, IEEE Day Seminar on Spectrum Sensing for Cognitive Radio Networks — Oct 2012.
17. Resource Person, IEEE ComSoc workshop on Communication System Simulations Using MATLAB & Simulink, Usman Institute of Technology, Karachi — Apr 2012.
18. Resource Person, "Simulating Wireless Communication Systems Using MATLAB," Mehran UET — Apr 2011.
19. Invited Guest Speaker, Sir Syed University of Engineering & Technology — May 2011.
20. Invited Guest Speaker, "Future of Optical Networks," Quaid-e-Awam UET — Apr 2011.
21. Invited Guest Speaker, "Optical Networks: Past, Present & Future," Mehran UET — Aug 2010.
22. Resource Person, "Workshop on Communication & Professional Skills," Mehran UET — Feb 2011.

PROFESSIONAL DEVELOPMENT — CERTIFICATIONS (21)

1. Huawei Academy - HCI Security V4.0
2. Huawei Academy - HCIA Cloud Computing V5.0
3. Google AI Essentials, Coursera — Oct 2025.
4. Google Cybersecurity Professional, Coursera — Aug 2025.
5. McKinsey Forward Program Certificate, McKinsey.org — Jul 2025.
6. Huawei HCIA — OpenEuler TTT Training — Aug 2025.
7. An Essential Guide to AI for Educators — Apr 2024.
8. Networking Basics, Cisco Networking Academy — Mar 2024.
9. Introduction to Cybersecurity, Cisco Networking Academy — Jan 2024.
10. Fundamentals of Network Communication, University of Colorado (Coursera) — Jan 2024.
11. Internet of Things: How Did We Get Here?, UC San Diego (Coursera) — Oct 2023.
12. Pak-Europe GIKI Photonics Symposium, Epic & SPIE Student Chapter, GIK Institute — Jul 2023.
13. One-day workshop, "Winning Strategies of Leadership and Management," HEC, Islamabad — Apr 2019.
14. Two-day certificate course, "Advanced Digital Design Using Mentor Graphics FPGA Design Flow," Mehran UET — Apr 2010.
15. One-day course, "Speed PhD," University of Leeds, UK — Jan 2007.
16. One-day course, "Starting Your PhD," University of Leeds, UK — Apr 2006.
17. Two-day course, "Statistics," University of Leeds, UK — Jun 2006.
18. One-day course, "Training in UNIX," University of Leeds, UK — Nov 2006.
19. One-day course, "From Linear Deterministic Least-Squares to Stochastic Least-Squares," University of Leeds, UK — Dec 2006.
20. One-day workshop, "Neural Networks," Mehran UET — Sep 2005.
21. Certified Fiber Optics System Specialist — Jul 2005.

EVENTS ORGANIZED & ATTENDED

1. Organizer, IEEE Pakistan Student/GOLD/WIE Congress (PSGWC) — Oct 2013.
2. Organized TechCombat Competition — Apr 2012.
3. Organized CISCO Skills Competition, National Engineering Exhibition, Telecommunication Department MUET — Nov 2011.
4. Member, Technical Committee, and Session Judge, IEEEEP Student Conference on Science, Engineering and Technology (SCONEST) — 2011.
5. Organized "2KES Alumni Project Competition," Telecommunication Department MUET — Oct 2010.
6. Organized and participated as author, 21st All Pakistan Electrical and Electronics Engineering Students Seminar — 2006.
7. Main author, Multi-Topic Student Conference of IEEEEP, Karachi — Feb 2004.
8. Educational participant, EXPOASIA 2002, Hyderabad, Pakistan.

PROFESSIONAL AFFILIATIONS

- Life Member, Pakistan Engineering Council (PEC) — ELECTRO/7170
- IEEE Photonics Society, Communication Society, and SIGHT — Membership No. 80474277
- Optica — Founder and Advisor, Student Chapter and Local Section — Membership No. 954021
- The Institution of Engineers, Pakistan — Membership No. M-23426/HYD-253
- Mehran University Teachers' Association (MUTA)
- University of South Wales (Glamorgan University) Alumni Union

TECHNICAL & LINGUISTIC SKILLS

Technical Skills

- Simulation & Design: MATLAB 7.5 R14, OPNET, OptiWave, LabVIEW, PSpice, Proteus 7.7, LTSpice, OrCAD 9.0, Electronic Work Bench, MultiSim, AutoCAD,
- Hardware: Oscilloscope, Vector network analyzer, spectrum analyzer, Raspberry Pi, Arduino, Node MCU, LoRaWAN
- Programming Languages: Python, PHP, C, C++, Visual Basic, GW-BASIC,
- Operating Systems: Windows (XP/2000/Vista/7/Me/98/95), Unix/Red Hat Linux
- Productivity & Design Tools: Microsoft Word, Excel, PowerPoint, Visio, Publisher, Outlook Express, LaTeX, Adobe Photoshop CS5, Inkscape, Git
- Typing speed: 63 words per minute.

Linguistic Skills

- Excellent written and spoken English
- Sindhi (mother tongue), Urdu, and Punjabi

COMMUNITY & PROFESSIONAL SERVICE

1. Founding member, 2KES Scholarship Foundation.
2. Editor, FEECE MUET e-Newsletter.
3. Board Member, Save Nature, Save Life (environmental group).
4. Expert Member, Charter Inspection & Evaluation Committee (CIEC), Education & Literacy Department, Government of Sindh — inspections of Sindh University (2022), Sir Syed University (2022), Indus University (2014), MAJU (2014), Hamdard University (2014), and Iqra University (2014).
5. External Examiner — Sindh University, DUET, QUEST, Hamdard University, and Sukkur IBA.
6. Member, Board of Studies, Dawood University of Engineering & Technology.
7. Member, Procurement Committee, DUET Karachi.
8. Member, Technical Program Committee — NGMAST'14, WSN4DC'13, IMTIC'13, FIT'13, CyberC'13, and others.

9. Expert Member, Selection Board for Lecturers/Lab Lecturers, Dawood College of Engineering, Karachi.
10. Chair, Tutorial Session — WSN4DC'13 / IMTIC'23.
11. Chair, Poster Session — WSN4DC'13 / IMTIC'12.
12. Member, Judges Panel — SCONEST 2011 and the QUECST Convention of Electronic Engineering Students (2011).
13. Reviewer of research grant proposals for the National Research Program for Universities, the Innovative & Collaborative Research Grant (ICRG), and Optica (formerly the Optical Society of America).
14. Peer reviewer for international journals including Wireless Personal Communications (Springer) and Transactions on Emerging Telecommunications Technologies.

REFERENCES

Prof. Dr. Salah Obayya

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