

OMAR Q. BANIMELHEM

Department of Network Engineering and Security
Faculty of Computer and Information Technology
Jordan University of Science and Technology
P.O. Box 3030, Irbid, 22110 Jordan
+962-2-7201000 ext. 22516 (Office)
+962-2-796426990 (Mobile)
<https://www.just.edu.jo/~omelhem/>

omelhem@just.edu.jo



1. Personal Information

a. Education

- | | |
|------|---|
| 2006 | Ph.D. Concordia University, Montreal, Canada.
Department of Electrical and Computer Engineering.
Dissertation Title: <i>Label Assignment and Failure Recovery Approaches for IP Multicast Communication in MPLS Networks.</i> |
| 1998 | M.Sc. Jordan University of Science and Technology, Irbid, Jordan.
Department of Electrical Engineering.
Thesis Title: <i>Building Fuzzy Maps for Mobile Robot Navigation Using Ultrasonic Range Data.</i> |
| 1995 | B.Sc. Jordan University of Science & Technology (JUST), Irbid, Jordan.
Department of Electrical Engineering. |

b. Experience

- **May. 2024-Present:** Professor,
Department of Network Engineering and Security,
Jordan University of Science and Technology, Irbid, Jordan.
- **Dec. 2013-May. 2024:** Associate Professor,
Department of Network Engineering and Security,
Jordan University of Science and Technology, Irbid, Jordan.
- **Sep. 2019-Sep. 2021:** Associate Professor and Chairman,
Department of Network Engineering and Security,
Jordan University of Science and Technology, Irbid, Jordan.

- **June. 2019 – Aug. 2019:** Visiting Scholar, Concordia University, Montreal-Canada
- **Oct. 2017 – Sep. 2018:** Deputy Director, Academic Development and Quality Assurance Center, Jordan University of Science and Technology, Irbid, Jordan.
- **Nov. 2016 – Sep. 2017:** Director of Accreditation and Quality Assurance Department, Academic Development and Quality Assurance Center, Jordan University of Science and Technology, Irbid, Jordan.
- **Sep. 2013–Sep. 2014:** Assistant Dean, Faculty of Graduate Studies, Jordan University of Science and Technology, Irbid, Jordan.
- **Sep. 2012–Sep. 2013:** Assistant Professor and Chairman, Department of Network Engineering and Security, Jordan University of Science and Technology, Irbid, Jordan.
- **Sep. 2009-Dec. 2013:** Assistant Professor, Department of Network Engineering and Security, Jordan University of Science and Technology, Irbid, Jordan.
- **Feb. 2006-Aug. 2009:** Assistant Professor, Department of Computer Engineering, Jordan University of Science and Technology, Irbid, Jordan.
- **Spring 2009:** Part-time Lecturer, Department of Computer Engineering, Hijjawi Faculty of Engineering Technology, Yarmouk University, Irbid, Jordan.
- **Spring 2008-2010:** Adjunct Professor, New York Institute of Technology (NYIT), Amman Campus.
- **Winter 2003:** Part-time Lecturer, Department of Mechanical and Industrial Engineering, Concordia University, Montreal, Canada.
- **Fall 2002:** Part-time Lecturer, Department of Electrical and Computer Engineering, Concordia University, Montreal, Canada.
- **Feb. 1999- Sep. 2000:** Full-time Lecturer, Department of Computer Engineering, Jordan University of Science and Technology, Irbid, Jordan.
- **Oct. 1998- Jan. 1999:** Instructor, Department of Electrical Engineering, Amman College for Engineering Technology, Al- Balqa' Applied University , Amman, Jordan.

- **Sep.1995-Jun.1998:** Teaching Assistant,
Department of Electrical Engineering,
Jordan University of Science and Technology, Irbid, Jordan.
- **Winter 2002, Fall 2003, Winter 2004, Fall 2004, Winter 2005, Fall 2005:** Teaching and Research Assistant,
Department of Electrical and Computer Engineering,
Concordia University, Montreal, Canada.

2. Research and Scholarly Activities

a. Links to Academic and Research Profile Websites

1. [Academic Website](#)
2. [JUST Faculty Member E-Portfolio](#)
3. [Research Gate](#)
4. [Google Scholar](#)
5. [IEEE Xplore](#)
6. [Scopus](#)
7. [ORCID](#)
8. [DBLP](#)

b. Refereed Journal Articles

1. **Omar Banimelhem** and Shifa'a Bani Hamad, "A Proactive Charging Approach for Extending the Lifetime of Sensor Nodes in Wireless Rechargeable Sensor Networks," Journal of Sensor and Actuator Networks.2025, 14(2), 26, <https://doi.org/10.3390/jsan14020026>
2. Zeinab Hussein and **Omar Banimelhem**, "Energy-Efficient Relay Tracking and Predicting Movement Patterns with Multiple Mobile Camera Sensors," J-ournal of Sensor and Actuator Networks. 2023; 12(2):35. <https://doi.org/10.3390/jsan12020035>
3. **Omar Banimelhem** and Fidaa Al-Quran, "Rendezvous Based Adaptive Path Construction for Mobile Sink in WSNs Using Fuzzy Logic," Computers 2023, 12(3):66. <https://doi.org/10.3390/computers12030066>
4. **Omar Banimelhem**, Anjali Agarwal, and Abed Al-Rahman Obeidat, "An Efficient Connectivity and Coverage Management Module for Software-Defined Wireless Sensor Networks," International Journal on Communications Antenna and Propagation (IRECAP), June 2022. pp. 160-167. <https://doi.org/10.15866/irecap.v12i3.21933>
5. **Omar Banimelhem**, Eyad Taqieddin, and Ibrahim Shatnawi, "An Efficient Path Generation Algorithm Using Principle Component Analysis for Mobile Sinks in Wireless Sensor Networks," Journal of Sensor and Actuator Networks, 10 (4), December 2021. <https://doi.org/10.3390/jsan10040069>
6. Dua'a Al-Lafi, **Omar Banimelhem**, Mohammad Shurman, Eyad Taqieddin, and Salim Alkhawaldeh, "Pilot Contamination Mitigation in Massive Multi-Input Multi-Output (MIMO) System," International Journal on Communications Antenna and Propagation (IRECAP), December 2020.pp. 377-385. <https://doi.org/10.15866/irecap.v10i6.19374>
7. Moad Mowafi, **Omar Banimelhem**, and Yosef Taher," Fuzzy Logic Based Cross-Layer Design for Image Transmission in Wireless Sensor Networks, "International Journal of Computational

Intelligence Systems, 11(1), pp. 882-893, 2018. DOI:[10.2991/ijcis.11.1.67](https://doi.org/10.2991/ijcis.11.1.67)

8. **Omar Banimelhem**, Eyad Taqieddin, Moad Mowafi, Fahed Awad, and Feda' Al-Ma'awbeh, "Fuzzy Logic-based Cluster Heads Percentage Calculation for Improving The Performance of The LEACH Protocol," International Journal of Fuzzy System Applications (IJFSA), 4(4), pp. 100-118, 2015. DOI: [10.4018/IJFSA.2015100106](https://doi.org/10.4018/IJFSA.2015100106)
9. **Omar Banimelhem**, Moad Mowafi, and Walid Aljoby, "Genetic Algorithm Based Node Deployment in Hybrid Wireless Sensor Networks," Communications and Network (CN). 5(4). pp. 273-279, 2013. DOI: [10.4236/cn.2013.54034](https://doi.org/10.4236/cn.2013.54034)
10. **Omar Banimelhem**, Lo'ai Tawalbeh, Moad Mowafi, and Mohammed Al-Batati, "A More Secure Image Hiding System using Pixel Adjustment and Genetic Algorithm," International Journal of Information Security and Privacy (IJISP). 7(3). pp. 1-15, 2013. DOI: [10.4018/jisp.2013070101](https://doi.org/10.4018/jisp.2013070101)
11. Eyad Taqieddin, Moad Mowafi, Fahed Awad, **Omar Banimelhem**, Hani Maher, "An Energy-Balanced Cluster-Based Protocol for Wireless Sensor Networks," International Journal of Information Technology and Web Engineering (IJITWE), 8(3). pp. 50-63, 2013. DOI: [10.4018/ijitwe.2013070104](https://doi.org/10.4018/ijitwe.2013070104)
12. Lo'ai Tawalbeh, **Omar Banimelhem** and Mohammed Al-Batati, "A Novel High Quality High Capacity Image Hiding Scheme Based on Image Compression and Optical Pixel Adjustment Process," Information Security Journal: A Global Perspective. 21(5). pp. 256-268, 2012. <https://doi.org/10.1080/19393555.2012.694979>
13. **Omar Banimelhem** and Samer Khasawneh, "GMCAR: Grid-based Multipath with Congestion Avoidance Routing Protocol in Wireless Sensor Networks," Ad Hoc Networks. 10(7), pp. 1346-1361, 2012. <https://doi.org/10.1016/j.adhoc.2012.03.015>
14. Moad Mowafi, Fahed Awad, Eyad Taqieddin, and **Omar Banimelhem**, "A Practical Study of Jointly Exploiting Multiple Image Compression Techniques for Wireless Multimedia Sensor Networks," Journal of Communications (JCM), 7(4), pp. 309-320, 2012. DOI: [10.4304/jcm.7.4.309-320](https://doi.org/10.4304/jcm.7.4.309-320)
15. Fahed Awad, **Omar Banimelhem**, Eyad Taqieddin, and Raed Bani-Hani, "Undergraduate Program in Network Engineering and Security – A Feasibility Study," International Journal of Modern Education and Computer Science (IJMECS). 4(2), pp. 45-51, 2012. DOI: [10.5815/ijmeecs.2012.02.07](https://doi.org/10.5815/ijmeecs.2012.02.07)
16. Omar M. Al-Jarrah, **Omar Q. Bani-Melhem**, "Building maps for mobile robot navigation using fuzzy classification of ultrasonic range data," Journal of Intelligent and Fuzzy Systems. 11(3-4), pp. 171-184, 2001.

c. Conference Papers

1. Isra' Hasan and **Omar Banimelhem**, "Federated Multi-Agent Fuzzy Q-Learning Framework for Intelligent Charging Schedule in Wireless Rechargeable Sensor Networks," The 3rd International Conference on Intelligent Computing, Communication, Networking and Services (ICCNS2025), September 1-4, 2025, Varna-Bulgaria.
2. Ayah Aloudah and **Omar Banimelhem**, "An Enhanced Task Scheduling Algorithm for Cloud Computing Environments," The 16th International Conference on Information and Communication Systems (ICICS 2025), July 1-3, 2025, Irbid-Jordan.
3. Hanan Alfares, **Omar Banimelhem**, "Comparative Analysis of Machine Learning Techniques for Handling Imbalance in IoT-23 Dataset for Intrusion Detection Systems," The 11th International

- Conference on Internet of Things: Systems, Management and Security (IOTSMS 2024), September 2-5, 2024, Malmo-Sweden, pp. 112-119.
4. **Omar Banimelhem** and Baghdad Al-Khateeb, "Facial Image Recognition Using Transfer Learning: A Brief Review," The 15th International Conference on Information and Communication Systems (ICICS 2024), August 13-15, 2024, Irbid-Jordan.
 5. **Omar Banimelhem** and Wlla Amayreh, "The Performance of ChatGPT in Emotion Classification," The 14th International Conference on Information and Communication Systems (ICICS 2023), November 21-23, 2023, Irbid-Jordan.
 6. **Omar Banimelhem** and Wlla Amayreh, "Is ChatGPT a Good English to Arabic Machine Translation Tool?," The 14th International Conference on Information and Communication Systems (ICICS 2023), November 21-23, 2023, Irbid-Jordan.
 7. **Omar Banimelhem** and Baghdad Al-Khateeb, "Explainable Artificial Intelligence in Drones: A Brief Review," The 14th International Conference on Information and Communication Systems (ICICS 2023), November 21-23, 2023, Irbid-Jordan.
 8. Doaa Qawasmeh and **Omar Banimelhem**, "IOECCH: Improved Optimized Energy-Efficient Connected Coverage Heuristic Algorithm in WSNs," The 14th International Conference on Information and Communication Systems (ICICS 2023), November 21-23, 2023, Irbid-Jordan.
 9. Shifa'a Bani Hamad and **Omar Banimelhem**, "Proactive Charging Mechanism for Wireless Rechargeable Sensor Networks," International Arab Conference on Information Technology (ACIT 2022), November 22-24, 2022, Abu Dhabi, United Arab Emirates.
 10. Yazid Abed Alqader and **Omar Banimelhem**, "An Enhanced Energy-Efficient Coverage Protocol for Wireless Sensor Networks," IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology (JEEIT 2021), November 16-18, 2021, Amman, Jordan.
 11. Moad Mowafi, Omar Oudat, Eyad Taqieddin, **Omar Banimelhem**, "Image Steganography using YCbCr Color Space and Matrix Pattern," The 2nd International Conference on Signal Processing and Information Security (ICSPIS 2019), Dubai-UAE.
 12. **Omar Banimelhem**, Hiba Al-Dahoud, Eyad Taqieddin, and Moad Mowafi, "Genetic-based Key Splitting Algorithm for the Two Layered Protection Scheme " The 10th International Conference on Information and Communication Systems (ICICS 2019), Irbid-Jordan, Pp. 71-76.
 13. Mohammad M. Shurman, **Omar Banimelhem**, Dua'a A. Al-Lafi, and Samah J. Al-Zaro, " Pilot contamination mitigation in massive MIMO-based 5G wireless communication networks," The 9th International Conference on Information and Communication Systems (ICICS 2018), Irbid-Jordan, Pp. 102-107.
 14. **Omar Banimelhem**, Alaa Abu-Hantash, "Fuzzy logic-based clustering approach with mobile sink for WSNs," The 13th International Computer Engineering Conference (ICENCO 2017), Cairo-Egypt, 2017, Pp.36-40.
 15. **Omar Banimelhem**, Muhammad Naserllah, Alaa Abu-Hantash, " An efficient coverage in wireless sensor networks using fuzzy logic-based control for the mobile node movement," Advances in Wireless and Optical Communications conference (RTUWO 2017), Riga-Latvia, 2017, Pp. 239-244.
 16. Eyad Taqieddin, Hiba Al-Dahoud, Moad Mowafi, and **Omar Banimelhem**, "An Enhanced EPC Gen2v2 RFID Authentication and Ownership Management Protocol," The 42nd IEEE Conference on Local Computer Networks (LCN), Singapore, 2017, Pp.683-689.

17. **Omar Banimelhem**, Muneer M. Al-Zu'bi, Mohammad S. Al Salameh, "Hata Path Loss Model Tuning for Cellular Networks in Irbid City," CIT/IUCC/DASC/PICom 2015, Liverpool-UK, 2015. Pp. 1646-1650.
18. **Omar Banimelhem**, Moad Mowafi, and Oduy Alzoubi, "Multilevel thresholding image segmentation using memetic algorithm," The 6th International Conference on Information and Communication Systems (ICICS), Amman-Jordan, 2015. pp. 119-123.
19. **Omar Banimelhem**, Moad Y. Mowafi, Eyad Taqieddin, Fahed H. Awad, and Manar Al Rawabdeh, "An Efficient Clustering Approach using Genetic Algorithm and Node Mobility in Wireless Sensor Networks," The Eleventh International Symposium on Wireless Communication Systems (ISWCS 2014). Barcelona-Spain, 2014. pp. 858-862
20. Fahed H. Awad, Eyad Taqieddin, Moad Y. Mowafi, **Omar Banimelhem**, and Amani Abu Qdais , " A Simulation Testbed to Jointly Exploit Multiple Image Compression Techniques for Wireless Multimedia Sensor Networks," The Eleventh International Symposium on Wireless Communication Systems (ISWCS 2014). Barcelona-Spain, 2014. pp. 905-911.
21. **Omar Banimelhem**, Eyad Taqieddin, and Feda' Al-Ma'awbeh, "A New Approach for Target Coverage in Wireless Sensor Networks using Fuzzy Logic," in Proceedings of the 2013 IEEE International Conference on Networking, Sensing and Control, Paris-France, 2013.pp. 837–842.
22. Eyad Taqieddin, **Omar Banimelhem**, and Ibrahim Shatnawi, "A Path Generation Algorithm for Mobile Sinks in Wireless Sensor Networks", in Proceedings of the 2013 International Conference on Innovation in Information Technology (IIT), Al Ain, UAE, March 17-19, 2013.pp. 164-168.
23. Feda' Al-Ma'awbeh, **Omar Banimelhem**, Eyad Taqieddin, Fahed Awad, and Moad Mowafi, " Fuzzy Logic Based Energy Efficient Adaptive Clustering Protocol," in Proceedings of the 3rd International Conference on Information and Communication Systems (ICICS 2012), Irbid-Jordan, April 3-5, 2012.
24. Wedyan Al-Switi, Nadia Bani-Mostafa, Fahed Awad and **Omar Banimelhem**, "An Intelligent Computer-Aided Pronunciation Teaching System for Arabic Alphabets," an Extended abstract in the Fourth Annual Undergraduate Research Conference on Applied Computing, Zayed University , April 18 - 19, 2012, Dubai, UAE.
25. **Omar Banimelhem** and Rami Bani Hani, "Neural Network Based Optimization of CMOS Transistor sizing for Leakage Power Minimization," Proceedings of the 2012 International Conference on Innovation In Information Technology (IIT), Al Ain, UAE, March 18-20, 2012. pp. 167 -172.
26. **Omar Banimelhem** and Yahya Ahmed Yahya, "Multi-Thresholding Image Segmentation using Genetic Algorithm," in Proceedings of the International Conference on Image Processing, Computer Vision, and Pattern Recognition (ICPV'11), Las Vegas, Nevada, USA, July 18-21, 2011, pp. 1009-1014.
27. Fahed Awad, **Omar Banimelhem** and Nadia Al-Rousan, "The Potential of Using Network Coding with Geographical Forwarding Routing for Wireless Multimedia Sensor Networks," The 2011 IEEE 11th International Conference on Computer and Information Technology (CIT), Paphos, Cyprus, August 31 – September 2, 2011, pp. 9-14.
28. Moad Mowafi, Fahed Awad, Eyad Taqieddin, and **Omar Banimelhem**, "Experimental Evaluation of Image Compression and Transmission for TinyOS-Based Imote2 Platform," The 2011 IEEE International Conference on Innovation In Information Technology (IIT), Abu Dhabi, UAE, April 25-27, 2011, pp. 173-178
29. **Omar Banimelhem**, Qasem Abu Al-Haija and Ahmad Al-Badawi, "Performance Evaluation of

Probabilistic Key Management Approaches for Wireless Sensor Networks”, Proceedings of the International conference on Information and Communication Systems (ICICS 2009), Amman-Jordan, December 20-22, 2009.

30. **Omar Banimelhem** and Samer Khasawneh, “Grid-based Multi-path with Congestion Avoidance Routing (GMCAR) Protocol for Wireless Sensor Networks”, in Proceeding of the 16th International Conference on Telecommunications (ICT 2009), Marrakech, Morocco, May 25-27, 2009, pp. 131-136.
31. **Omar Banimelhem**, Anjali Agarwal and J. William Atwood, "A New MPLS-based Local Failure Recovery for Multicast Communication", in Proceedings of The 4th ACS/IEEE International Conference on Computer Systems and Applications (AICCSA-06), Dubai/Sharjah, UAE, March 8-11, 2006, pp. 228-231.
32. **Omar Banimelhem**, Anjali Agarwal and J. William Atwood, "A Tree Division Approach to Support Local Failure Recovery for Multicasting in MPLS Networks", in Proceedings of The International Conference on High Speed Networks (ICHSN 2005), Montreal, Canada, August 1-4, 2005, pp. 249-254.
33. **Omar Banimelhem**, J. William Atwood and Anjali Agarwal, "Deploying Multicast Communication over MPLS Networks Using Tree Numbering", in Proceedings of The Tenth IEEE Symposium on Computers and Communications (ISCC 2005), Cartagena, Spain, June 27-30, 2005, pp. 704-710.
34. **Omar Banimelhem**, J. William Atwood and Anjali Agarwal, "An Approach to Solving a Multicasting Scalability Issue in MPLS Networks Using State Encoding", in Proceedings of The IEEE Canadian Conference on Electrical and Computer Engineering (CCECE 2004), Niagara Falls, Ontario, Canada, May 2-5, 2004, pp. 1911-1914.
35. **Omar Banimelhem**, J. William Atwood and Anjali Agarwal, “Resiliency Issues in MPLS Networks.” IEEE CCECE 2003 , Montreal-Canada, May 2003. pp. 1039-1042.

d. Book Chapter

1. **Omar Banimelhem**, Eyad Taqieddin, Moad Mowafi, Fahed Awad, and Feda' AlMa'aqbeh, "Fuzzy Logic-based Cluster Heads Percentage Calculation for Improving The Performance of The LEACH Protocol," Fuzzy Systems: Concepts, Methodologies, Tools, and Applications 2-3, (2017), pp. 609-627.

e. Contracts and Grants

1. Principle investigator, “ A Deep Learning-based Algorithm for Improving the Accuracy of Detecting Deepfake Images” funded by the Deanship of Scientific Research, Jordan University of Science and Technology, 2025
2. Principle investigator, “An Energy-efficient Management Module for software-defined Wireless Sensor Networks using Sleep Scheduling Approach and Shortest Path Routing,” funded by the Deanship of Scientific Research, Jordan University of Science and Technology, 2020
3. Principle investigator, “Genetic-based Energy-efficient and Coverage-aware Clustering Protocols for Wireless Sensor Networks,” funded by the Deanship of Scientific Research, Jordan University of Science and Technology, 2019

4. Principle investigator, "An Efficient Algorithm for Maintaining Connectivity and Maximizing Lifetime in a Mobile Wireless Sensor Network," funded by the Deanship of Scientific Research, Jordan University of Science and Technology, 2019
5. Principle investigator, "Fuzzy Logic-Based Sink Positioning in Large-Scale Wireless Sensor Networks," funded by the Deanship of Scientific Research, Jordan University of Science and Technology, 2013.
6. Co-investigator, "Automatic Multilevel Thresholding Methods for Image Segmentation using Memetic Algorithm and Wavelet Transform," funded by the Deanship of Scientific Research, Jordan University of Science and Technology, 2013
7. Principal investigator, "Improving the Functionality of LEACH Protocol Using Computational Intelligence Methods," funded by the Deanship of Scientific Research, Jordan University of Science and Technology, 2012.
8. Co-investigator, "Efficient image compression and transmission for practical wireless multimedia sensor networks," funded by the Deanship of Scientific Research, Jordan University of Science and Technology, 2011.
9. Travel grants (Several times), 2009, 2011, 2012, 2013, 2015, 2017, 2019, 2022, 2024 and 2025.

2. Awards and Recognitions

1. Mentor, Best Oral Presentation Award, "The 4th Annual Undergraduate Research Conference on Applied Computing (URC'12)," Dubai, UAE, April 2012.
2. Mentor, National Technology Parade 2010, First Place Award, Intelligent Systems, May 2010.
3. Dean's Recognition for conducting a feasibility study on initiating a new academic program in Network Engineering and Security, Jan. 2009.
4. PhD scholarship from Jordan University of Science and Technology, 2000-2005.
5. Ministry of Higher Education Fellowship. 1990-1995.

3. Teaching and Advising

a. Courses Taught

1. At the Department of Computer Engineering, Jordan University of Science and Technology

Course code	Course Title	Terms	Level
CPE 441	Data Communications	Fall 2007, Summer 2008, Summer 2009, Fall 2009, Spring 2011	Undergraduate
CPE 442	Computer Networks	Spring 2010, Summer2010, Fall 2010	Undergraduate
CPE 772	Multimedia Networking	Spring 2009	Graduate

	and Communication		
CPE 312	Engineering Computations	Spring 2006	Undergraduate
CPE 251	Digital Logic Design	Spring 2006, Spring 2007, Summer 2007	Undergraduate
CPE 254	Digital Logic Design and Computer Organization (For non-CIT Students)	Summer 2006, Fall 2008, Spring 2009	Undergraduate
CPE 412	Simulation and Modeling	Fall 2006, Spring 2007, Fall 2007, Spring 2008, Fall 2008, Summer 2009, Fall 2009, Spring 2010, Spring 2012, Fall 2012	Undergraduate
CS 101	Introduction to Information Technology	Summer 2007	Undergraduate
CS 115	Programming Using C++	Spring 2008, Summer 2008, Spring 2011	Undergraduate
CPE 255	Digital logic Design Lab.	Fall 2008, Fall 2010	Undergraduate
CPE 751	Artificial Intelligence and Machine Learning	Fall 2010, Spring 2011, Fall 2011, Fall 2012, Spring 2015, Spring 2016, Spring 2017	Graduate

2. At the Department of Network Engineering and Security, Jordan University of science and Technology

Course code	Course Title	Terms	Level
NES 202	Introduction to UNIX	Spring 2024, Summer 2025	Undergraduate
NES 311	Data Communications	Fall 2011, Spring 2022, Fall 2022	Undergraduate
NES 312	Fundamentals of Computer Networks	Spring 2012, Summer 2012, Spring 2014	Undergraduate
NES 301	Probability and Queuing Theory	Spring 2013, Fall 2013, Summer 2014, Fall 2014, Fall 2015, Spring 2016, Fall 2020, Spring 2021, Fall 2021, Spring 2022, Fall 2022, Spring 2023, Summer 2023, Fall 2023, Spring 2024, Fall 2024, Spring 2025	Undergraduate
NES 413	Computer Networks Laboratory	Spring 2013, Summer 2013, Fall 2013, Spring 2014, Fall 2014, Spring 2015, Fall 2015, Spring 2015, Fall 2017, Fall 2019, Spring 2020, Summer 2020, Fall 2020, Spring 2021, Fall 2021, Spring 2022, Fall 2022, Spring 2023, Summer 2023, Fall 2023, Fall 2024, Summer 2025, Fall 2025	Undergraduate

NES 415	Networking Protocols	Fall 2015, Spring 2025	Undergraduate
NES 442	Wireless Networks Laboratory	Summer 2023, Spring 2025	Undergraduate
NES 460	Multimedia Networking	Spring 2016	Undergraduate
NES 545	The Internet of Things	Fall 2024, Fall 2025	Undergraduate
NES 595	Special Topics in Network Engineering and Security (3)	Spring 2017, Fall 2017, Spring 2020	Undergraduate
NES 779	Special Topics in Network Engineering and Security	Spring 2018, Spring 2022, Spring 2025	Graduate
NES 740	Wireless Sensor Networks	Fall 2019, Spring 2021	Graduate
NES 741	Advanced Wireless Networks	Spring 2024	Graduate

3. At the Department of Computer Engineering, Yarmouk University

Course code	Course Title	Terms	Level
CPE 562	Computer Networks	Spring 2009	Undergraduate

4. At New York Institute of Technology (NYIT), Amman Campus

Course code	Course Title	Terms	Level
MIST 735	Computer Simulation and Modeling	Spring 2008	Graduate
EENG 665	Linear Systems	Fall 2009, Spring 2010	Graduate

b. Advising (non-research)

- Academic advisor for the 2020 Network Engineering and Security class of about 25 undergraduate students. 2020-present.
- Academic advisor for the 2009 Network Engineering and Security class of about 36 undergraduate students. 2009-2015.
- Academic advisor for Computer Engineering undergraduate students. 2006-2008.

- Supervised/co-supervised over 25 senior projects for about 75 Computer Engineering and Network Engineering students and served as a member of a project examination committee for over 40 senior projects.

A list of selected senior projects that I supervised/co-supervised

1. Lettuce Hydroponic System Automation Using IoT (Fall 2024 and Spring 2025).
2. Automated Greenhouse Based on IoT System (Fall 2024 and Spring 2025).
3. IoT-based drip monitoring system (Fall 2024 and Spring 2025).
4. New Born Baby Protection and Security Using RFID-based Bracelet (Spring 2023 and Fall 2023).
5. Health+: An SDN Based Health Management System (Spring 2022 and Fall 2022).
6. Smart system to increase the efficiency of solar panels (Fall 2019 and Spring 2020).
7. Smart Irrigation System (Spring 2019 and Fall 2019).
8. Autonomous Self-Filling Gas Station System (GazMe) (Fall 2018 and Spring 2019).
9. Healthy life application for older people (Spring 2018 and Fall 2018).
10. Shamel Application (Spring 2018 and Fall 2018).
11. GPS-based tourist guide (Spring 2018 and Fall 2018).
12. Wireless Sensor Network for Gas Stations (Fall 2014 and Spring 2015).
13. Smart Home Control via LAN (Fall 2014 and Spring 2015).
14. A Wireless Sensor Network for Monitoring Elderly People (Spring 2014 and Fall 2014).
15. PC Android Controller (Fall 2013 and Spring 2014).
16. Multi-player Android Game (Fall 2013 and Spring 2014).
17. Smart Image Spam Filter (Fall 2012 and Spring 2013).
18. Arabic Handwriting Recognition (Fall 2012 and Spring 2013).
19. Neural Network based Map Building Using Multiple Robots (Fall 2011 and Spring 2012).
20. Arabic Learning Pad (Spring 2011 and Fall 2011).
21. Map-Based Mobile Robot Navigation (Fall 2010 and Spring 2011).
22. Smart Wireless Face Recognition System (Fall 2009 and Spring 2010). (National Award Winner).
23. 3-D Object Recognition. (Spring 2009 and Fall 2009).
24. Localization Identification using WSN. (Spring 2009 and Fall 2009).
25. Mobile TV. (Spring 2009 and Fall 2009).

c. Advising (research)

Master Thesis Supervised/Co-Supervised

<i>Student</i>	<i>Grad. Date</i>	<i>Title of the Thesis</i>
Randa Abu Zaid	June 2023	An Energy-Efficient Hybrid Scheduling Algorithm for Heterogeneous Wireless Sensor Networks
Shifa'a Bany Hamad	March 2023	A Proactive Charging Approach For Wireless Rechargeable Sensor Networks
Rawa'a Al-Quraan,	June 2022	A Dynamic Approach for Optimizing Service Broker in Cloud Computing Using Decision Support Systems,
Haya Hasan,	June 2022	A Dynamic Approach for Intrusion Detection Using Machine Learning in the IoT.
Bana Althawabteh	Septembr 2020.	An Improved mobile anchor nodes path planning algorithm using Network-density-based clustering in Wireless Sensor Networks,
Duaa Al Lafi	July 2019	Pilot Contamination Mitigation in Massive Multi-Input Multi-Output System
Youssef Abed Almoghni	June 2014	Fuzzy Logic Based Cross-Layer Design for Quality of Service Support in Wireless Multimedia Sensor Networks
Feda' Al-Ma'aqbeh	June 2014	Enhanced Target Coverage in Wireless Sensor Networks Using Fuzzy Logic
Ibrahim Shatnawi	May 2013	An Efficient Path Generation Algorithm using the Principle Component Analysis for Mobile Sinks in Wireless Sensor Networks
Ammar Al-Lataifeh	May 2013	Multi-source Geographic Routing Protocol with Disjoint-paths For Wireless Multimedia Sensor Networks.
Samer Khasawneh	June 2009	Grid-based Multi-path with Congestion Avoidance Routing Protocol for Wireless Sensor Networks.
Nader Rashad	January 2008	An Enhanced Active Queue Management Scheme for Supporting Fairness in IP Networks.

Doctoral Thesis Supervised/Co-Supervised

There are no Ph.D. programs offered by the Faculty of Computer and Information Technology at JUST.

d. Thesis Committees

1. Alaa Mhesin, A Scheme for Pivotal Features Selection to Improve Network Intrusion Detection Systems (NIDS) using Advanced Machine Learning Approaches, October 2023, (*Committee Member*).
2. Randa Abu Zaid, An Energy-Efficient Hybrid Scheduling Algorithm for Heterogeneous Wireless Sensor Networks, June 2023, (*Committee Member*).
3. Shifa'a Bany Hamad, A proactive Charging Approach For Wireless Rechargeable Sensor Networks, March 2023, (*Committee Chairman*).
4. Rawa'a Al-Quraan, A Dynamic Approach for Optimizing Service Broker in Cloud Computing Using Decision Support Systems, June 2022, (*Committee Member*).
5. Haya Hasan, A Dynamic Approach for Intrusion Detection Using Machine Learning in the IoT, June 2022, (*Committee Member*).
6. Maha Al-Jarah. Attention-based Deep Learning Approach for Detecting IoT BOTNET-based Distributed Denial of Service Attacks. December 2021, (*Committee Member*).

7. Bana Althawabteh, An Improved mobile anchor nodes path planning algorithm using Network-density-based clustering in Wireless Sensor Networks, September 2020, *(Committee Chairman)*.
8. Duaa Al Lafi, Pilot Contamination Mitigation in Massive Multi-Input Multi-Output System, July 2019. *(Committee Member)*.
9. Yosef Abdulmoghni, Fuzzy Logic Based Cross-Layer Design for Quality of Service Support in Wireless Multimedia Sensor Networks, June 2014. *(Committee Member)*.
10. Fida'a Al-maqbeh, Enhanced Target Coverage in Wireless Sensor Networks Using Fuzzy Logic, June 2014. *(Committee Member)*.
11. Zaid Alomari, An Efficient Billing Scheme for Trusted Nodes in Wireless Sensor Networks, April 2014. *(Committee Member)*.
12. Abdalraheem Abdullah Ijeh, Energy Aware Dynamic Clustering LEACH Protocol for Wireless Sensor Networks (DC-LEACH), December 2013. *(Committee Member)*.
13. Ibrahim Shatnawi, An Efficient Path Generation Algorithm using the Principle Component Analysis for Mobile Sinks in Wireless Sensor Networks, May 2013. *(Committee Chairman)*.
14. Ammar Al-Lataifeh, Multi-source Geographic Routing Protocol with Disjoint-paths For Wireless Multimedia Sensor Networks, May 2013. *(Committee Member)*.
15. Walid Abdulwahab Al-Gobi, Energy-Efficient Correlation-Aware Video Streaming for Wireless Multimedia Sensor Networks, January 2013. *(Committee Member)*.
16. Mohammed Al-Batati, Opportunistic Network Coding for Real-Time Transmission over Wireless Networks, December 2011. *(Committee Member)*.
17. Asmaa Seyam, A node-Location Optimization Algorithm for Energy-Efficient Clustering in Wireless Sensor Networks. July 2011. *(Committee Member)*.
18. Abdullah Ahmed Yaqot, Target Classification in Wireless Sensor Network Using Particle Swarm Optimization (POS). May 2010. *(External Examiner)*.
19. Samer Khasawneh, Grid-based Multi-path with Congestion Avoidance Routing Protocol for Wireless Sensor Networks. June 2009. *(Committee Chairman)*.
20. Nader Rashad, Enhanced Active Queue Management Scheme for Supporting Fairness in IP Networks. January 2008. *(Committee Chairman)*.

4. Service

a. Professional

- Reviewer for several international conferences and Journals
 - Advances in Wireless and Optical Communications conference (RTUWO 2018)
 - The 2012 IEEE Symposium on Industrial Electronics & Applications (ISIEA 2012)
 - The 2012 IEEE Symposium on Wireless Technology & Applications (ISWTA 2012)
 - Canadian Conference on Electrical and Computer Engineering (CCECE 2010 and 2012)
 - The IEEE Business Engineering and Industrial Applications Colloquium 2012 (BEIAC 2012)
 - IEEE Symposium on Computers & Informatics (ISCI 2011 and 2012).

- International Conference on Innovations in Information Technology (IIT 2008, 2012, and 2013).
 - The 2012 IEEE Conference on Open Systems (ICOS 2012).
 - International Conference on Information and Communication Systems (ICICS 2009, 2011, 2012, 2017, and 2018).
 - Sensors.
 - Electronics.
 - Applied Science.
 - Mathematics.
 - Information Security Journal: A Global Perspective.
 - Physical Communication.
 - Journal of Network and Computer Applications, JNCA.
 - Ad Hoc Networks Journal.
 - Journal of Emerging Technologies in Web Intelligence, JETWI.
 - Journal of Intelligent and Fuzzy Systems, JIFS.
 - Journal of Communications and Networks, JCN.
 - International Journal of Information Security and Privacy (IJISP).
 - ETRI Journal (Electronics and Telecommunications Research Institute).
 - China Communications journal.
 - Peer-to-Peer Networking and Applications journal.
 - Telecommunication Systems Journal.
 - Cluster Computing Journal
 - PeerJ Computer Science Journal
 - IEEE Magazine
- Session Chair/Co-Chair.
 - Track and Session Chair, AI and ML Track, The 15th International Conference of Information and Communications Systems (ICICS'24), Jordan University of Science and Technology, August, 13-15, 2024.
 - Program committee member, the First International Conference of Information and Communications Systems (ICICS'09), Jordan University of Science and Technology, December 2009.
 - Program committee member, the Second International Conference of Information and Communications Systems (ICICS'11), Jordan University of Science and Technology, May 2011.
 - Program committee member, the Third International Conference of Information and Communications Systems (ICICS'12), Jordan University of Science and Technology, April 2012.

- Track and Session Chair, The Ninth International Conference of Information and Communications Systems (ICICS'18), Jordan University of Science and Technology, April 2018.
- Track and Session Chair, The Eighth International Conference of Information and Communications Systems (ICICS'17), Jordan University of Science and Technology, April 2017.
- Session Chair, The 8th International conference on Innovations in Information Technology (IIT 2012), Al Ain, UAE, March 2012.

b. University

- Deputy Director, Academic Development and Quality Assurance Center, Oct. 2017 – Sep. 2018.
- Director of Accreditation and Quality Assurance Department, Academic Development and Quality Assurance Center, Nov. 2016 – Sep. 2017.
- Chairman of the University committee to revise the documents required to transfer the administration units to ISO 9001:2015 certificate, 2018.
- Assistant Dean, Faculty of Graduate Studies, 2013-Sep. 2014.
- Chairman of the Department of Network Engineering and Security. 2012-2013. 2019-2021.
- Member of Computer and Information Technology College Council. 2017-2021.
- Member of board of directors, Computer and Information Center. 2013 –2017.
- Co-founder of the *Multimedia Networking Research Laboratory*. 2010-present.
- Member of Computer and Information Technology College Council. 2012-2013.
- Member of the University Council 2011-2012.
- Member of Computer and Information Technology College Council. 2010-2011.
- Co-founder and initiator of the Master Program of Network Engineering and Security, 2017.
- Co-founder and initiator of the Undergraduate Program of Network Engineering and Security, 2008.
- Member in a committee to conduct a feasibility study on initiating a new undergraduate program in Network Engineering and Security. 2007-2008.

College and Department Committees

- Faculty of Computer and Information Technology Committees
 - Member: Committee to propose the Study Plan for Artificial Intelligence Program. 2020.

- Member: Initiative and Creativity Committee. 2019-2021.
 - Member: Scientific Research Committee. 2020-2021.
 - Member: Graduate Studies Committee. 2019-2021.
 - Member: Study Plan Committee. 2019-2021
 - Member: Appointment and Promotion Committee. 2020-2021.
 - Member: Strategic Plan Committee. 2020-2021.
 - Member: Connection with Industry Committee. 2019-2020.
 - Member: Appointment and Promotion Committee. 2017-2021.
 - Member: Connection with Industry Committee. 2018-2019.
 - Member: Organizing Committee for ICICS 2019 Conference, 2018-2019.
 - Chair: Committee to reformulate the training rules in the Faculty. 2013.
 - Member: Curriculum and Quality Assurance Committee. 2012-2013.
 - Member: Committee to organize the graduation ceremony. 2012
 - Member: Committee to examine and select employees for Laboratory supervisors. 2009.
 - Member. Committee to initiate a Program in Network Engineering and Security. 2008-2009.
 - Member: Committee to Enhance Students training and Graduation Projects. 2007.
 - Chair: Library Committee. 2006-2007.
- Department of Network Engineering and Security Committees
 - Member: Graduate Studies Committee. 2023-2024, 2024-2025, 2025-2026
 - Member: Appointment and Promotion Committee. 2023-2024, 2024-2025, 2025-2026
 - Chair: Self-Study Report Committee: 2020-2021,
 - Chair: Study Plan and Accreditation Committee. 2020-2021.
 - Member: Graduate Studies and Scientific Research Committee. 2017-2019, 2021-2023.
 - Chair: Graduate Studies and Scientific Research Committee. 2019-2021.
 - Member: Scientific Research Committee. 2015-2017.
 - Chair: Scientific Research Committee. 2012-2013.
 - Chair: Course Schedule Committee. 2012-2013.
 - Member: Curriculum Committee. 2010-2011, 2016-2017.
 - Member: Accreditation and Quality Assurance Committee. 2009-2010, 2016-2018.
 - Member: Appointment and Promotion Committee. 2009-2010.
 - Chair: Curriculum Committee. 2009-2010.

- Department of Computer Engineering Committees
 - Member: Graduation Project Committee. 2011-2012.
 - Chair: Graduation Project Committee. 2008-2009.
 - Member: ABET Accreditation Preparation Committee. 2010.
 - Chair: Course Description Committee. 2009.
 - Graduate program coordinator and Member in Graduate Studies Committee. 2009.
 - Member: Laboratory Committee. 2007-2008.
 - Member: Appointment and Promotion Committee. 2006-2007.
 - Chair: Graduation Project Committee. 2006-2007.

5. Training Courses and Workshops

1. Increasing the chance of article acceptance in publishing, Deanship of Academic Development and Quality Assurance, Jordan University of Science and Technology, Irbid-Jordan, July 23-24, 2025.
2. Academic Quality Evaluator Training Course, Accreditation and Quality Assurance Commission for Higher Education Institution, Amman-Jordan, February 1-2-2025.
3. Technical skills for managing e-learning system, Center of E-Learning and Open Education, Jordan University of Science and Technology, July 24th, 2024
4. How to Design Your Online Course, Center of E-Learning and Open Education, Jordan University of Science and Technology, October 24th, 2022.
5. Quality of Online Courses- Applying the Quality Matters Rubric Workshop organized by The Academic Development and Quality Assurance Center, Jordan University of Science and Technology. 22-24/04/2019.
6. Internal Auditing On ISO 9001:2015 Training Course organized by The Academic Development and Quality Assurance Center, Jordan University of Science and Technology, Irbid-Jordan, January 28-29, 2018.
7. ISO 9001:2015 Clauses Training Course organized by The Academic Development and Quality Assurance Center, Jordan University of Science and Technology, Irbid-Jordan, December 18-19, 2017.
8. KPIs for Process Evaluation Training Course organized by The Academic Development and Quality Assurance Center, Jordan University of Science and Technology, Irbid-Jordan, November 28th, 2017.
9. Risk Management Training Course organized by The Academic Development and Quality Assurance Center, Jordan University of Science and Technology, Irbid-Jordan, November 20th, 2017.
10. Process Approach Training Course organized by The Academic Development and Quality Assurance Center, Jordan University of Science and Technology, Irbid-Jordan, November 15th, 2017.
11. Learning Design Workshop organized by The Academic Development and Quality Assurance Center, Jordan University of Science and Technology, Irbid-Jordan, October 9-10, 2017.

12. Problem-Based Learning Workshop organized by The Academic Development and Quality Assurance Center, Jordan University of Science and Technology, Irbid-Jordan, June 6th and June 13th, 2017.
13. Preparing for ISO 9001:2015 Workshop organized by LLOYD'S REGISTER, Irbid-Jordan, May 22-23, 2017.
14. Development of Curriculum and Study plans Workshop organized by The Academic Development and Quality Assurance Center, Jordan University of Science and Technology, Irbid-Jordan, January 18-19, 2017.
15. E-Learning: Open Education Resources Workshop organized by The Academic Development and Quality Assurance Center, Jordan University of Science and Technology, Irbid-Jordan, June 9-10, 2015.
16. "ABET: an Overview" Workshop organized by The Academic Development and Quality Assurance Center, Jordan University of Science and Technology, Irbid-Jordan, February 16th, 2016.
17. Training course in Self-Evaluation of Academic Programs, organized by The Academic Development and Quality Assurance Center, Jordan University of Science and Technology, Irbid-Jordan, June 20th, 2013.
18. FP7 workshop, organized by Princess Sumaya University for Technology, Amman-Jordan, September 26-28, 2011.
19. Training course in Introduction to Cryptography, organized by The Consultative Center for Science and Technology, Jordan University of Science and Technology, Irbid-Jordan, September 13-15, 2011.
20. Training course in Technology Transfer Policy for Developing Countries, organized by COMSTECH, Islamabad-Pakistan, October 12-17, 2009.
21. Training course in Advanced Applications in University Testing and Evaluations, organized by The Academic Development and Quality Assurance Center, Jordan University of Science and Technology, Irbid-Jordan, May 23-24, 2007.
22. Training course in Modern University Instructional Methods, organized by The Academic Development and Quality Assurance Center, Jordan University of Science and Technology, Irbid-Jordan, November 19th and 21st, 2006.
23. Training course in Testing and Evaluation "University Examinations", organized by The Academic Development and Quality Assurance Center, Jordan University of Science and Technology, Irbid-Jordan, May 4th and 11th, 2006.