

# Mouloud Aoudia

## Industrial Engineering PhD

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### 1. Academic Qualifications

- **Ph.D. in Industrial Engineering** | January 2010
  - National Polytechnic School (Algiers, Algeria) in cooperation with University Paris 12 (Paris, France)
- **M.S. in Economics and Applied Statistics** | April 1999
  - National School of Statistics and Applied Economics (Formerly: National Institute of Planning and Statistics) (Algiers, Algeria)
- **B.S. in Industrial Engineering** | July 1995
  - National Polytechnic School (Algiers, Algeria)

### 2. Academic and Professional Positions

My passion for empowering students and forming future engineers is reflected in my diverse academic roles. I leverage my expertise in problem-solving, curriculum development, and industry experience to cultivate a dynamic and engaging learning environment where students gain practical, career-ready skills.

#### Current Academic Roles

##### University Level (Northern Border University)

- **Consultant of the University Vice President of Graduate Studies and Scientific Research for the Quality and Academic Accreditation** (March 2021 – July 2024)
- **Consultant, Deanship of Graduate Studies** (January 2016 – July 2023)

##### College Level (College of Engineering, Northern Border University)

- **Consultant of the Dean of the College of Engineering** (January 2023 - Present)
- **Consultant of the Dean of the College of Engineering for the Quality and Academic Accreditation** (September 2022 - Present)

##### Department Level (Industrial Engineering Department, College of Engineering, Northern Border University)

- **Assistant Professor** (August 2012 - Present)
  - Delivered a wide range of industrial engineering courses, including:
    - Capstone Design Project 1 and 2
    - Industrial System Simulation
    - Project Management
    - Reliability Engineering
    - Decision Analysis
    - Operations Research 1 and 2
    - Supply Chain

- Lean Manufacturing
- Safety Engineering
- Industrial Quality Control
- Engineering Ethics
- Engineering Economy
- Engineering Management
- Introduction to Engineering Design
- Providing active academic and professional guidance to students in areas including course selection, career paths, and skills development.
- Collaborated on curriculum review and continuous improvement to align the program with evolving industry standards, ensuring student preparedness for the field.
- Utilize a student-centered teaching philosophy emphasizing practical applications, real-world problem-solving, and critical thinking skills.

## Previous Academic Roles

- **Head of Industrial Engineering Department** (Industrial Engineering Department, College of Engineering, Northern Border University, Arar, Saudi Arabia | 2017 - 2018)
- **Assistant Professor** (National School of Statistics and Applied Economics, Algiers, Algeria | September 2011 – August 2012)
- **Assistant Professor** (Industrial Engineering Department, King Khalid University, Abha, Saudi Arabia | September 2010 – August 2011)
- **Assistant Professor** (Department of Management, University Kasdi Merbah, Ouargla, Algeria | January 2010 - August 2010)

## 3. Industrial Experience

My diverse industrial experience highlights my adaptability, strong leadership, and strategic problem-solving skills. This background provides me with real-world insights that enrich my academic and professional contributions. Key roles include:

- **Manager, Plastic Fiber Algeria SARL** (Algiers, Algeria | 2000 - 2003)
- **Studies Manager, Investment Promotion Support & Monitoring Agency** (Algiers, Algeria | 1998 - 2000)
- **Project Engineer, National Company of Non-Ferrous Mining Products & Useful Substances** (Algiers, Algeria | 1997 - 1998)

## 4. Quality Assurance and Academic Accreditation Leadership

I have made significant contributions to quality and accreditation initiatives across Northern Border University, actively participating in various university, college, and department-level committees. Key contributions include:

### University Level (Northern Border University)

- **Council of the Deanship of Quality & Academic Accreditation** (2022 - 2023)
- **Permanent Committee of Reviewers** (2022 - 2024)
- **Permanent Internal Auditing of Academic Programs Committee** (2019 – 2022)
- **Permanent Committee for Auditing of Engineering and Computing Academic Programs** (2023 – 2024)
- **Committee for Meeting Condition No. 2 (ETEC/NCAAA)** (2023 – 2024)

- **Standard 3: “Teaching and Learning” Committee (NCAAA Project)** (2019/2020 – 2020/2021)
- **Sub-Standard 3: “Graduate Programs” Committee (NCAAA Project)** (2019/2020 – 2020/2021)
- **Standard 7: “Scientific Research” Committee (NCAAA Project)** (2019/2020 – 2020/2021)
- **Committee for Establishing University Policies for Evaluating Learning Outcomes** (2020/2021 - 2021/2022)

#### **College Level (College of Engineering, Northern Border University)**

- **Director, Quality Assurance and Academic Accreditation Unit** (2014 - Present)
- **Chairman, Accreditation Coordinating Committee** (2014 - Present)
- **Coordinator, NCAAA Accreditation** (2021 - Present)
- **Coordinator, ABET Accreditation** (2014 - Present)

#### **Department Level (Industrial Engineering Department, College of Engineering, Northern Border University)**

- **Coordinator, Academic Accreditation Committee** (2014 - Present)
- **Chairman, NCAAA Self-Study Report Committee** (2022/2023 – 2023/2024)
- **Chairman, ABET Self-Study Report Committee** (2014/2015 – 2015/2016 & 2022/2023)

### **5. Curriculum Development & Strategic educational Initiatives**

I have consistently contributed to curriculum development and strategic educational initiatives across Northern Border University, actively participating in various committees at the university, college, and Department Levels. Key contributions include:

#### **University Level (Northern Border University)**

- **Member, Permanent Committee for Academic Plans and Programs** (2017 – Present)
- **Member, Committee for the Development of Manual of Learning and Teaching Strategies** (2019/2020 – 2020/2021)
- **Committee for Restructuring Academic Programs** (2020/2021-2021/2022)
- **Committee for Feasibility Studies for New Programs** (2020/2021-2021/2022)
- **Committee for Interdisciplinary Program Models** (2021/2022 – 2022/2023)
- **Committee for Mining and Related Fields Programs** (2021/2022-2022/2023)
- **Committee for Programs in Excellence Areas** (2021/2022-2022/2023)
- **Committee for Developing the University Guide for Designing, Developing, and Reviewing Programs** (2020/2021 – 2021/2022)
- **Assessment & Evaluation Committee of the Preparatory Year Program** (2014-2015)

#### **College Level (College of Engineering, Northern Border University)**

- **Member, Curriculum Committee** (2014 - Present)
- **Coordinator, Mining Engineering Program Establishment Committee (Aug 2021 - Present):**
- **Member, Mining Diploma Establishment Committee (August 2021 – September 2022):**
- **Member, Material Engineering Program Establishment Committee (Aug 2021 - Present):**

#### **Department Level (Industrial Engineering Department, College of Engineering, Northern Border University)**

- **Chairman, Curriculum Committee** (2014 - 2018)
- **Member, Curriculum Committee** (2019 - Present)

## 6. Strategic Planning

I have contributed to strategic planning across Northern Border University through participation in various university, college, and department-level committees. Key contributions include:

### University Level (Northern Border University)

- **Member, Permanent Committee for University Governance** (2022 - 2023)
- **Member, Permanent Committee for Monitoring Strategic Initiatives** (2020 - 2023)
- **Member, Higher Permanent Committee for the Vision 2030 Realization** (2018 - 2019)
- **Member, Permanent Committee for Vision 2030 Realization** (2018 - 2019)
- **Vice-Director, Office of Vision 2030 Realization** (2018 - 2019)
- **Member, Committee for Restructuring Scientific Departments of the College of Business Administration at Northern Border University** (2022/2023)
- **Member, Committee for Feasibility Study for Establishing a Mining College** (2021/2022 - 2022/2023)

### College Level (College of Engineering, Northern Border University)

- **Coordinator, Strategic Planning & Initiatives Committee** (2021 - Present)
- **Coordinator, Operational Plan Committee** (2019 - Present)

### Department Level (Industrial Engineering Department, College of Engineering, Northern Border University)

- **Chairman, Operational Plan Committee** (2019 - Present)

## 7. Research and Graduate Studies:

My active participation in various graduate studies committees reflects my commitment to advancing research and graduate education at Northern Border University. Through my work in strategic planning, policy development, and program evaluation, I strive to ensure the quality and relevance of our graduate offerings.

### University Level (Northern Border University)

- **Member, Permanent Committee of Graduate Studies** (2022/2023 - Present)
- **Member, Graduate Studies Council** (2016/2017 – 2022/2023)
- **Member, Committee for Reviewing Executive Regulations of Graduate Studies** (2021/2022)
- **Member, Committee for Elaborating Procedures of Scientific Publishing and Authoring** (2017-2018)
- **Member, Committee for Developing Master's Degree Programs** (2020/2021 – 2022/2023)
- **Member, Committee for Establishing High-Demand Diploma and Master Programs** (2020 - Present)
- **Member, Committee for the Development of Graduate Studies** (2020 - Present)
- **Member, Committee for the Development of Innovation and Research Strategic Plan** (2019/2020 – 2020/2021)

### Department Level (Industrial Engineering Department, College of Engineering, Northern Border University)

- Coordinator, Committee for Establishing Master of Science in Safety Engineering and Risk Management (2023/2024 – 2024/2025)

## 8. Additional Contributions

In addition to my previous participation, I am also contributing to various committees at different levels across the university, college, and department, such as the following:

### University Level (Northern Border University)

- Member, University's Academic Integrity Policy Committee (2023 – Present)

### College Level (College of Engineering, Northern Border University)

- Chairman, Laboratories Committee (2023 – Present)

### Department Level (Industrial Engineering Department, College of Engineering, Northern Border University)

- Member, Community Service Committee (2014 - Present)
- Member, Academic Advising and Career Guidance Committee (2014 - Present)
- Member, Alumni Committee (2014 - Present)
- Member, Faculty Staff Affairs Committee (2014 - Present)

## 9. Publications / Conferences

My published works and conference presentations reflect my research interests in various fields, including Curriculum Design and Development, Engineering Education, Renewable Energy and Optimization Algorithms. I am committed to expanding my research contributions, with several publications currently under review at reputable journals.

### Published Works

- Ali Koondhar, M., Afridi, S. K., Saand, A. S., Khatri, A. R., Albasha, L., Alaas, Z. M., Graba, B. B., Touti, E., **Aoudia, M.**, & Ahmed, M. M. R. (2024). Eco-friendly energy from flowing water: A review of floating waterwheel power generation. *IEEE Access*. <https://doi.org/10.1109/ACCESS.2024.3419019>
- Afridi, S. K., Ali Koondhar, M., Jamali, M. I., Alaas, Z. M., Alsharif, M. H., Kim, M.-K., Mahariq, I., Touti, E., **Aoudia, M.**, & Ahmed, M. M. R. (2024). Winds of progress: An in-depth exploration of offshore, floating, and onshore wind turbines as cornerstones for sustainable energy generation and environmental stewardship. *IEEE Access*. <https://doi.org/10.1109/ACCESS.2024.3397243>
- Aghaei, H., Ashtari Larki, H., Taqizadeh, M., **Aoudia, M.**, Aich, W., Kolsi, L., & Razavi Dehkordi, M. H. (2024). Multi-objective modeling and optimization of dissimilar laser welding by integrating an artificial intelligence predictive model with NSGA-II algorithm. *Materials Today Communications*, 35, 109765. <https://doi.org/10.1016/j.mtcomm.2024.109765>
- Touti, E., Rafikiran, S., Graba, B. B., **Aoudia, M.**, & Senthilkumar, S. (2024). A comprehensive performance analysis of advanced hybrid MPPT controllers for fuel cell systems. *Scientific Reports*, 14, 63074. <https://doi.org/10.1038/s41598-024-63074-z>
- Touti, E., Rafikiran, S., **Aoudia, M.**, Alrougy, I. M., Khan, B., & Ali, A. (2024). A new single switch universal supply voltage DC-DC converter for PV systems with MGWM-AFLC MPPT controller. *Scientific Reports*, 14, 62171. <https://doi.org/10.1038/s41598-024-62171-3>

- Touti, E., **Aoudia, M.**, Hussaian Basha, C. H., Alrougy, I. M., & Oubelaid, A. (2024). A novel design and analysis adaptive hybrid ANFIS MPPT controller for PEMFC-fed EV systems. *International Transactions on Electrical Energy Systems*. <https://doi.org/10.1155/2024/5541124>
- Iftikhar, H., Khan, N., Raza, M. A., Abbas, G., Khan, M., **Aoudia, M.**, Touti, E., & Emar, A. (2024). Electricity theft detection in smart grid using machine learning. *Frontiers in Energy Research*, 12, 1383090. <https://doi.org/10.3389/fenrg.2024.1383090>
- **Aoudia, M.** (2022). Appropriateness of the international accreditation frameworks of engineering education to the academic engineering programs in Saudi Arabia: A comparative study. *International Journal of Advanced and Applied Sciences*, 9(3), 126-136. <https://doi.org/10.21833/ijaas.2022.03.014>
- **Aoudia, M.**, Marji, K., & AlQahsi, D. A. (2015). Assessment of higher education quality by using cohort of first-year in university. *Procedia - Social and Behavioral Sciences*, 191, 828-833. <https://doi.org/10.1016/j.sbspro.2015.04.310>
- **Aoudia, M.**, & Abu-Alqahsi, D. A. (2015). Curriculum redesign process for an industrial engineering program seeking ABET accreditation. *International Journal of Engineering Pedagogy*, 5(3), 44-51. <https://doi.org/10.3991/ijep.v5i3.4670>
- **Aoudia, M.** (2015). Towards the design of a new framework for maintenance costing. *Contemporary Engineering Sciences*, 8(28), 1359-1371. <https://doi.org/10.12988/ces.2015.59264>
- **Aoudia, M.**, Belmokhtar, O., & Zwingelstein, G. (2008). Economic impact of maintenance management ineffectiveness of an oil and gas company. *Journal of Quality in Maintenance Engineering*, 14(3), 306-318. <https://doi.org/10.1108/13552510810899454>

## Conferences

- **Aoudia, M.**, & Abu Al-Qahsi, D. A.-D. (2015). Development of a new curriculum for an industrial engineering program that meets the curriculum requirements of ABET and the institution. In *2015 IEEE Global Engineering Education Conference (EDUCON)* (pp. 1098-1102). <https://doi.org/10.1109/EDUCON.2015.7095965>
- **Aoudia, M.**, Marji, K., & Abu-AlQahsi, D. "Cohort-based Assessment of Student Outcomes". Paper presented at the World Conference on Educational Sciences, February 2014, Malta
- Belmokhtar, O., & **Aoudia, M.** Conception et simulation d'un modèle basé sur le CCV pour l'amélioration de la fonction maintenance. Paper presented at the 8th International Conference on Modeling and Simulation - MOSIM'10, May 2010, Hammamet, Tunisia
- Belmokhtar, O., Ouabdesselam, A., & **Aoudia, M.** (2004). Conception of an information system for the maintenance management. In *Proceedings of the 5th International Conference on Quality, Reliability, and Maintenance (QRM 2004)* (pp. 329-334). <https://doi.org/10.1109/QRM.2004.1397634>

## 10. Academic Honors and Awards:

I have been honored to receive recognition for my contributions to education and graduate studies. This includes certificates of gratitude from Northern Border University for supporting graduate studies and ABET accreditation, a Best Faculty Award, and a scholarship for doctoral research.

- Received a Certificate of Gratitude from the President of Northern Border University in January 2018, in recognition of significant contributions to the quality improvement of graduate studies within the university.
- Awarded a Certificate of Gratitude from the President of Northern Border University in December 2017 for exemplary efforts in preparing five Engineering Programs for the ABET Team Visit.
- Received a Certificate of Gratitude from the Dean of the College of Engineering in December 2017 for dedicated efforts in preparing five Engineering Programs for the ABET Team Visit.

- Awarded a Certificate of Gratitude from the Dean of the College of Engineering in recognition of contributions to the quality improvement of engineering education within the college for the academic year 2014/2015.
- Honored with the Best Faculty Award by the Dean of the College of Engineering for the academic year 2014/2015, recognizing outstanding performance and contributions.
- Granted a Scholarship by the Algerian Government for doctoral research finalization in France, covering the years 2005-2008.

## 11. Professional Development

Committed to continuous professional development, I actively participate in accreditation initiatives, conferences, workshops, and professional societies to stay informed about best practices.

### Academic Accreditation

- **Reviewer, National Center for Academic Accreditation and Evaluation (NCAAA/ETEC) (2021 - Present)**
  - Participated in ETEC/NCAAA review panels for the evaluation of academic programs in Saudi Universities.
  - Participated in the 2021/2022 project assessing quality at private universities and colleges.

### Training

- Attended the ABET Symposium in Atlanta, USA, in April 2015, enhancing knowledge and expertise in academic accreditation processes.
- Participated in over 15 workshops on quality in higher education at Northern Border University, Arar, Saudi Arabia, from 2014 to present, focusing on continuous improvement and best practices.
- Certified as a Comfar III Expert by the United Nations Industrial Development Organization (UNIDO), Vienna, in May 1999, specializing in project evaluation and financial analysis.

### Membership of Professional Bodies

- Senior Member of the Institute of Industrial and Systems Engineers (IISE), USA, engaging with a network of professionals and contributing to the field.
- Member of the International Society for Engineering Pedagogy (IGIP), Austria, committed to advancing engineering education.

### Service as Reviewer / Journal Editorial Boards

- Reviewer for PLOS One, Journal of Industrial Engineering and Management and EDUCON IEEE, contributing to the advancement of scientific research and educational methodologies.
- Associate Editor and Reviewer for several academic journals, including:
  - Revue d'Économie et de Statistique Appliquée, Algeria
  - Revue Innovation, Algeria
  - Al-Bahith Review, Algeria
  - Journal of Quantitative Economics Studies, Algeria
  - Algerian Review of Economic Development, Algeria
  - L'entreprise, Algeria
  - The Economic and Human Development Magazine, Algeria
  - Revue Des Sciences Humaines, Algeria
  - Revue de Recherches et Etudes Scientifiques, Algeria
  - The Journal of Economics Studies and Research in Renewable Energies, Algeria
  - Economic Development Review, Algeria
  - Revue Algérienne d'Economie et Gestion (Revue Eco-Gest), Algeria

- The Journal of Economic Integration, Algeria
- Journal of Economic Additions, Algeria
- Journal of Finance and Accounting Studies, Algeria
- Journal of Management and Economic Sciences Prospects, Algeria
- Revue Algerienne de Finances Publiques (RAFIP)
- Revue d'Economie et de Management (E&M)