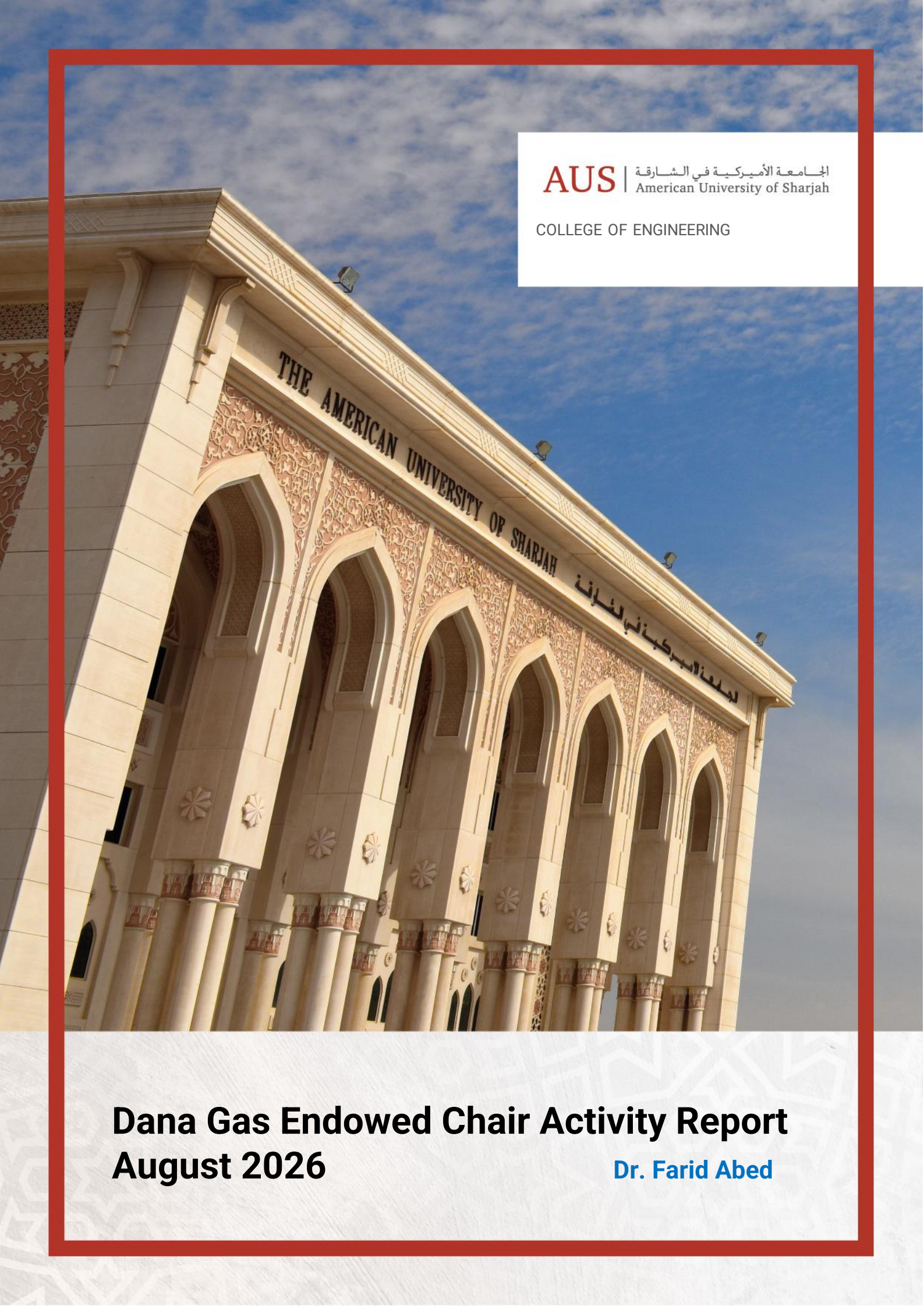




AUS | الجامعة الأميركية في الشارقة
American University of Sharjah

COLLEGE OF ENGINEERING

Dana Gas Endowed Chair Activity Report

August 2026

Dr. Farid Abed

RESEARCH

• RESEARCH GRANTS AND AWARDS

AWARDS:

- Secured several external research grants totaling more than **AED 2 million** from Sharjah Design Center (SDC), Holcim, UAEU and Canada.
- Received the Outstanding International Collaboration award by CEN.
- Named among the World's Top 2% Scientists by Stanford University for the sixth consecutive year.

GRANTS

- P1.** *"Development of Innovative Construction Products using Local Materials"* AED 1,620,000, Sharjah Design Center. **(PI)**, 2026-2028. (External)
- P2.** *"Biochar-Enhanced Concrete for Carbon Removal: Toward Net Zero Construction in the UAE"* AED 49,000, Holcim-RMG. **(PI)**, 2025-2026. (External)
- P3.** *"Retrofitting of RC Columns Pre-Damaged by Corrosion Using Advanced Composite Materials"* AED 350,000, United Arab Emirates University. **(Co-I)**, 2024-2026. (External)
- P4.** *"Fire Performance of Concrete Beams Reinforced with FRP Bars."* AED 540,000, Alliance International Grants at UL Canada. **(Co-I)**, 2023-2026. (External)
- P5.** *"Warning-Enabled Composites for Sustainable Strengthening of Reinforced Concrete Structures"* AED 450,000, American University of Sharjah - FRG26. **(PI)**, 2026-2028. (Internal)
- P6.** Secured funding (AED 350,000) from the Vice Chancellor for Research (VCR) Office to purchase a large-scale 3D printer to advance research capabilities within the Civil Engineering Department. (Internal)
- P7.** *"Design and Experimental Investigations of Concrete Beams Reinforced with GFRP Bars and Using FRC"* AED 5,500, American University of Sharjah - URG. **(PI)**, 2025-2026. (Internal)
- P8.** *"Smart Mechanochromic FRP Composites for Structural Health Monitoring: Bond Behavior Evaluation"* AED 53,000, American University of Sharjah – RRG. **(PI)**, 2025-2026. (Internal)
- P9.** *"Seismic Rehabilitation of Beam-Column Joints with Fiber-reinforced Geopolymeric- and High-Strength Strain-Hardening Matrix Composites"* AED 210,000, American University of Sharjah - FRG24. **(PI)**, 2024-2026. (Internal)

• INTERNATIONAL RESEARCH COLLABORATION

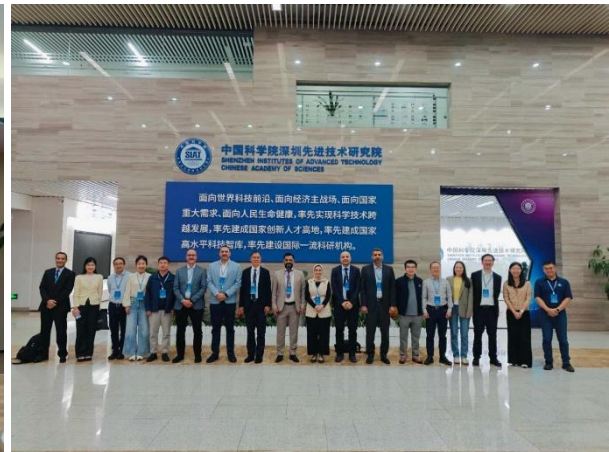
- Initiated an international research collaboration with Dr. Mohammad Fotouhi at Delft University of Technology, the Netherlands, to access advanced laboratory facilities for composite materials, leading to the successful award of the FRG26 research grant.



- Visited the University of Miami to establish research and testing collaboration with Professor Antonio Nanni and his laboratory, supporting Dubai Municipality's recent introduction of certification schemes for GFRP bars.



- Participated in a university delegation visit to SIAT in Shenzhen, China, to present recent research advancements, facilitate knowledge exchange, and strengthen research collaboration.



- Hosted Dr. Abdelkader Mir, Associate Professor at University of Balamand, Lebanon, as a visiting scholar at AUS for six months, starting in June 2026.
- Attended a workshop at Parc des Ateliers in France to strengthen research collaboration with LUMA as part of the SDC-funded project.



Ongoing Collaborations:

Prof. Ahmed El Refaei, **Laval University, Canada**
 Dr. Hamzeh Hajiloo, **Carleton University, Canada**
 Prof. George Voyiadjis, **Louisiana State University, USA**
 Prof. Tao Yu, **Hong Kong Polytechnic University**
 Dr. Flávio Silva, **Pontifícia Universidade Católica do Rio de Janeiro, Brazil**
 Dr. Rafah Abdulmajid, **Erbil Polytechnic University, Iraq**
 Dr. Alyaa Alattar, **Northern Technical University, Iraq**

• ARTICLES PUBLISHED ([Scopus](#))

- J1.** S. Ainomugisha, M. J. Matovu, **F. Abed**, H. M. Hamada, Z. A. Al-Sadoon, and M. Manga, "Efficiency-driven design of biomass-derived nanoparticles for cementitious materials application," *Results in Engineering*, vol. 32, 2026. DOI: 10.1016/j.rineng.2026.112593.
- J2.** R. Abdulmajid, A. Al-Attar, and **F. Abed**, "Nano-enabled microstructural engineering of low-carbon HPC: a performance-based sustainability review," *Waste Management Bulletin*, vol. 4, (3), 2026. DOI: 10.1016/j.wmb.2026.100353.
- J3.** S. Ainomugisha, M. J. Matovu, **F. Abed**, H. M. Hamada, Z. A. Al-Sadoon, and M. Manga, "Engineered waste-derived mesoporous green n-SiO₂ for low-carbon cementitious materials: Box Behnken design modelling and mechanisms," *Discover Materials*, vol. 6, 2026. DOI: 10.1007/s43939-026-00770-9.
- J4.** M. Al Dawood, H. Hajiloo, and **F. Abed**, "Post-fire performance of GFRP-RC beams: lap splice length and intumescent coating effects," *Construction and Building Materials*, vol. 524, 2026. DOI: 10.1016/j.conbuildmat.2026.146325.
- J5.** S. Khalaf, B. Al-Momani, and **F. Abed**, "Rehabilitation of fire-damaged reinforced concrete columns using advanced composites," *Composites Part C: Open Access*, vol. 20, 2026. DOI: 10.1016/j.jcomc.2026.100735.
- J6.** **F. Abed**, H. Hajiloo, M. Al Dawood, and S. Khalaf, "Effectiveness of fire protection systems on GFRP-reinforced concrete beams," *Composite Structures*, vol. 379, 2026. DOI: 10.1016/j.compstruct.2025.119976.
- J7.** F. AbuObaida, T. El Maaddawy, **F. Abed**, and A. ElRefai, "Behavior of eccentrically loaded RC columns strengthened with FRCM wraps," *Results in Engineering*, vol. 29, 2026. DOI: 10.1016/j.rineng.2025.108561.
- J8.** F. AbuObaida, T. El Maaddawy, **F. Abed**, A. ElRefai, "Eccentrically loaded corroded RC columns repaired with advanced composites: experimental testing and analytical modeling," *Composite Structures*, vol. 377, 2026. DOI: 10.1016/j.compstruct.2025.119899.
- J9.** H. M. Hamada, **F. Abed**, K. Tracy, and B. A. Tayeh, "Utilizing raw desert sand and as a sustainable fine aggregate: Impact on concrete performance and environmental benefits," *International Journal of Concrete Structures and Materials*, vol. 19, (1), 2025. DOI: 10.1186/s40069-025-00853-6.
- J10.** L. Marini, M. A. Mannan, A. B. H. Kueh, A. A. Abdullah, **F. Abed**, and K. Gunasekaran, "Ultra-high strength geopolymer concrete from industrial waste: reducing anhydrous sodium silicate and steel fiber effects," *Iranian Journal of Science and Technology*, 2025. DOI: 10.1007/s40996-025-02060-5.
- J11.** F. AbuObaida, T. El Maaddawy, **F. Abed**, and A. El Refai, "Rehabilitation of concentric reinforced concrete columns pre-damaged by corrosion using advanced composites," *Structures*, vol. 80, 2025. DOI: 10.1016/j.istruc.2025.109932.

- J12.** A. Hassan and **F. Abed**, "Dynamic strain aging in martensitic microcomposite formable steel (MMFX): a constitutive and numerical modeling approach based on the diffusion kinetics of solute atoms," *Journal of Materials Science*, vol. 60, (35), 2025. DOI: 10.1007/s10853-025-11367-7.
- J13.** Z. A. Saib, **F. Abed**, M. H. Ghayesh, and M. Amabili, "A review of fluid-structure interaction: blood flow in arteries," *Biomedical Engineering Advances*, vol. 9, 2025. DOI: 10.1016/j.bea.2025.100171.

• BOOK CHAPTERS & CONFERENCE PROCEEDINGS

- C1.** P. Uppin, **F. Abed**, and T. El-Maaddawy, "Performance of GFRP RC deep beams with web reinforcement," in *Towards a Sustainable Construction Future: Proceedings of the 3rd International Conference on Sustainable Buildings and Construction 2026*, DOI: 10.1108/978-1-80686-919-020261047.
- C2.** Z. Elnassar, S. Khalaf, and **F. Abed**, "Flexural response of fire-damaged beams strengthened with C-FRCM," in *RILEM Spring Convention and Conference 2026*, DOI: 10.1007/978-3-032-23439-1_32.
- C3.** A. Saber, **F. Abed**, and T. El Maaddawy, "Influence of web opening size on shear behavior of GFRP-reinforced high strength concrete deep beams," in *International Conference on Sustainability: Developments and Innovations 2026*, DOI: 10.1007/978-981-92-1726-7_19.
- C4.** L. Marini, M. A. Mannan, A. B. H. Kueh, A. A. Abdullah, **F. Abed**, K. Gunasekaran, and M. Y. Buswig, "Vibration energy harvesting in high-performance geopolymer mortar: a proof-of-concept with piezoelectric integration," in *International Conference of EURO ASIA Civil Engineering Forum 2026*, DOI: 10.1007/978-981-95-6895-6_37.
- C5.** Z. Elnassar, N.G. Aswad, M. Alkhader, and **F. Abed**, "Compressive response of GFRP bars at high strain rates," in *International Conference on Fibre-reinforced polymer (FRP) Composites in Civil Engineering 2026*, DOI: 10.1007/978-3-032-09399-8_154.
- C6.** Z. Elnassar, M. Alkhader, and **F. Abed**, "Dynamic response of BFRP bars subjected to impact loading at high strain rates," in *Advances in Science and Technology 2025*, DOI: 10.4028/p-Ww3fch.
- C7.** M. Mbarouk, D. Hammoud, N. Aboelyousr, T. Alfalahi, S. Khalaf, **F. Abed**, "Thermal response of insulated GFRP-RC beams exposed to fire" in *AIP Conference Proceedings 2025*, DOI: 10.1063/5.0299224.
- C8.** A. Shakir, R. K. S. Al Hamd, and **F. Abed**, "Prediction of FRP RC column using AI and machine learning," in *International Conference on Digital Frontiers in buildings and infrastructure 2025*, DOI: 10.1007/978-981-95-8872-5_45.
- C9.** O. Salman, **F. Abed**, Y. Alhoubi, "Effect of shear span-to-depth ratio on the shear performance of GFRP reinforced UHPC beams," in *AIP Conference Proceedings 2025*, DOI: 10.1063/5.0299225.

TEACHING

• ACADEMIC ACTIVITIES

- Chaired the CVE department committee in coordinating the delivery of the new **PhD program in Civil and Environmental Engineering (PhD-CEE)**, officially launched in Fall 2025. This innovative program is approved by the UAE Commission for Academic Accreditation (CAA) and designed to equip engineers with advanced expertise in sustainability, resilience, digitalization, and structural robustness to tackle critical challenges in the built and natural environments.



• TEACHING

- Attended the **HIDENN-AI Summer Short Course 2026: AI-Empowered CAE for Design and Manufacturing** hosted by *Northwestern University*, Evanston, IL, USA on June 22-24, 2026.
- Coordinated the PhD CEE Doctoral Seminars by inviting speakers from industry, the broader professional community, and AUS faculty members.
- Delivered undergraduate and graduate courses at the Master's and PhD levels across multiple programs, including Civil Engineering, Biomedical Engineering, and Materials Science and Engineering.



• ADDITIONAL ACTIVITIES

○ AUS Undergraduate Students

- Sponsored and actively supported the ACI AUS Student Chapter's participation in the Big 5 Global event and in the technical sessions in November 2025, Dubai.
- Serving as the Academic Advisor for the ACI AUS Student Chapter, fostering student engagement and professional development.



○ AUS Graduate Students:

- Sponsored my Ph.D. student, Nour Ghazal, to present a paper at the 17th International Conference on Concrete Engineering and Technology, held August 2026 in Kuala Lumpur, Malaysia. Nour received the best paper and the best presenter awards during the conference.
- Sponsored my M.Sc. student, Prateek Uppin, to present a paper at the 3rd International Conference on Sustainable Buildings and Construction (ICSBC), held November 2025 in Muscat, Oman.
- Supported my Ph.D. student, Zeinah Elnassar, in presenting a research paper at the RILEM Conference (online), held April 2026 in Belgium.



Knowledge Transfer

KNOWLEDGE TRANSFER

• COMMUNITY ENGAGEMENT AND WORKSHOP

- Organized a two-day workshop on Fiber-Reinforced Polymer (FRP) Strengthening and Reinforcement, titled ***“Towards Enhanced Structures and Sustainable Construction: FRP Solutions for Strengthening, Rehabilitation, and Internal Reinforcement”*** at AUS on December 9-10, 2025. The workshop featured several international speakers and attracted more than 100 participants from the UAE construction industry including design professionals, building officials, and general contractors. The main aim was to transfer the knowledge of the recent advancement in the use of the FRP composites in construction. It provided an in-depth exploration of the latest codes and standards (ACI 440.11-22), strengthening techniques, and design requirements for FRP applications in construction.



- Dr. Farid Abed has been serving as **President** of the **UAE Chapter** of the **American Concrete Institute (ACI)** since February 202. He also serves as a member of the Organizing Committee for the 2027 ACI Concrete Conference, scheduled to be held in Dubai, UAE.

• KEYNOTE AND INVITED SPEAKERS

- Invited as a **plenary speaker** for the 2025 International Conference on Materials, Mechanical, and Civil Engineering Technologies (**ICCMCET 2025**), held December 2025 in Tokyo, Japan.
- Delivered an **invited talk** on “*Influence of web opening size on shear behavior of GFRP-reinforced high strength concrete deep beams*” at the International Conference on Sustainability: Developments and Innovations (**ICSIDI 2026**), held February 2026 in Riyadh, KSA.
- Delivered a **technical presentation** on “*Prediction of FRP RC column using AI and machine learning,*” at the International Conference on Digital Frontiers in buildings and infrastructure (**DFBI 2025**), held June 2025 in Delft, Netherlands.



- Delivered a **technical presentation** on “*Post-Fire Flexural Performance of GFRP-Reinforced Concrete Beams: Lap Splice Effect*” at the 17th International Symposium on Fiber Reinforced Polymer (FRP) Reinforcement for Concrete Structures (**FRPRCS17**), held July 2026 in Girona, Spain.

FRPRCS17 17th International Symposium on Fiber-Reinforced Polymer (FRP) Reinforcement for Concrete Structures
6-8 July 2026 - Girona, Spain

Post-Fire Flexural Performance of GFRP-Reinforced Concrete Beams: Lap Splice Effect

Mohammed Al Dawood, Salem Khalaf, Farid Abed and Hamzeh Hajiloo
Department of Civil Engineering, American University of Sharjah, Sharjah,
United Arab Emirates



- Active member of the **Executive Committee** of the International Institute for FRP in Construction (**IIFC**), recognizing leadership and contributions to the advancement of FRP technologies in engineering.



• MEETINGS AND INDUSTRY COLLABORATION

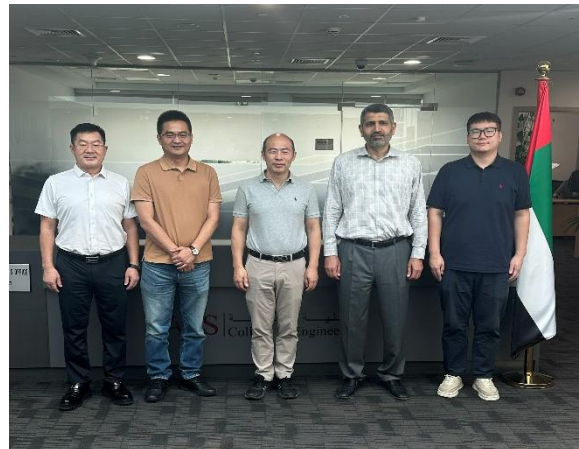
- Collaborated with **Dubai Central Laboratory** in Dubai Municipality to support the development of a certification scheme for GFRP bars in Dubai.



- Established a research collaboration with **Bekaert** company to investigate the innovative use of its fiber products in combination with GFRP bars in reinforced concrete structural members for applications in the UAE construction industry, with a focus on performance evaluation and alignment with relevant ACI 440 design provisions.



- Organized a meeting with Prof. Zhijian from **Wuhan University** and representatives from **China First Highway Engineering Company** and **China National Building Materials Group**. The discussion centered on promoting an innovative product in Sharjah and plans to establish a production line for Vacuum Extruded Cement Panels (VECP).



- Established research collaborations with **Transgulf Cement Product LLC** to support the production and application of GFRP bars as sustainable alternatives in concrete construction, and to develop innovative, sustainable construction products incorporating recycled and alternative materials for applications in the UAE construction industry.



• MEDIA AND E-COVERAGE

- Highlighted by AUS media for the two-day event: **“AUS brings global experts together to explore new technologies for repairing and reinforcing concrete infrastructure”**. American University of Sharjah (AUS), with the support of the Dana Gas Endowed Chair in Engineering, recently hosted a two-day workshop. [Click here for more details.](#)



- The event was also featured on the LinkedIn page of the ACI UAE Chapter. [Click here for more details.](#)

- Highlighted by AUS media for the Top 2% Scientists: **“AUS researchers named among world’s top 2% in Stanford–Elsevier List 2025”**. Research excellence has been recognized in the Stanford–Elsevier Top Scientists List 2025, recognized for their career-long global and single year impact, underscoring the sustained and continuing influence of my scholarship. [Click here for more details.](#)



- CEN honors Excellence Award winners, highlighted by the AUS media. The event celebrated the recipients of the annual CEN Excellence Awards, honoring Dr. Farid Abed, Professor of Civil Engineering and Dana Gas Endowed Chair in Engineering (Outstanding International Collaboration). [Click here for more details.](#)



Future Activities

FUTURE ACTIVITIES

- American Concrete Institute (ACI), in partnership with the ACI UAE Chapter, will be organizing the 2027 ACI Middle East Concrete Conference (ACI MEC 2027). This event will take place on January 27 & 28, 2027 at Kempinski Central Avenue hotel, Dubai, UAE. The event will bring together leading professionals, industry experts, and government representatives to explore practical solutions and breakthrough innovations that address the key challenges of constructability, boost productivity, and enhance resilience in concrete construction.



- The next International Conference on Damage Mechanics (ICDM) will be held at the American University of Sharjah (AUS). The date has been changed and will be announced soon.



The Team

THE TEAM



Farid Abed, PhD., PE, F.ASCE (Team leader): Professor of Civil Engineering, Dana Gas Endowed Chair, PhD in Structures/Mechanics, Louisiana State University, USA. Research focus areas: FRP Composites, Fire Technology, Computational Mechanics 200+ journal papers and conference proceedings ([Google Scholar](#))

Dr. Aroob Alateyat | Postdoctoral Fellow (PhD in Civil Engineering)

Salem Khalaf | Research Assistant (MSc. in Civil Engineering)

Zeinah El Nassar | PhD Student (Materials Science and Engineering)

Nour Ghazal Aswad | PhD Student (Materials Science and Engineering)

Waseem Siddique | PhD Student (Materials Science and Engineering)

Ahmed Selim | PhD Student (Civil Engineering)

Rouba Alzoubi | PhD Student (Civil Engineering)

Jawahir Salim Alhammadi | PhD Student (Engineering System Management)

Aalaa Shakir | MSc Student (Civil Engineering)

Mohamed Abu Rabie | MSc Student (Civil Engineering)

Anas Saber | MSc Student (Civil Engineering) – Graduated Dec. 2025

Prateek Uppin | MSc Student (Civil Engineering) - Graduated Dec. 2025

Byan Aldeeri | Visiting PhD Student (Civil Engineering)

Dr. Abdelkader Mir | Visiting Associate Professor (PhD in Civil Engineering)