

ABDULAZIZ BANAWI

PhD, BPA, LEED GA, USGBC Faculty Member

Assistant Professor

Department of Civil, Construction and Environmental Engineering

College of Engineering

North Dakota State University

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ABDULAZIZ.BANAWI@NDSU.EDU

WEBSITE: [THE BANAWI RESEARCH LAB](#)

HIGHLIGHTS

- Founder – Digital Construction Lab (DCL) at North Dakota State University, North Dakota, USA.
- Advisor Board Member – Dar Al-Hekmah University, Jeddah, Saudi Arabia 2020-2021.
- Founder - The Department of Architectural Engineering at the College of Engineering, King Abdulaziz University (KAU), Saudi Arabia. The university is ranked 231 in the world by the QS World ranking 2019.
- Developed the undergraduate program at the Architectural Engineering Department at King Abdulaziz University, Saudi Arabia.
- Secured research funds totaling 500,000 USD
- h-index 34, i10-index 102 on google scholar (abdulaziz.banawi@ndsu.edu)
- Published over than 40 journals in peer-reviewed journals
- Adjunct professor in different schools in Saudi Arabia, United Arab Emirates, Spain and united states of America

EDUCATION:

2013	<i>Doctor of Philosophy in Civil Engineering</i> Construction Management and Sustainability University of Pittsburgh
2008	<i>Master of Science in Civil Engineering</i> Construction Management Florida Institute of Technology
2008	<i>Master of Science in Systems Engineering</i> Engineering Management

Florida Institute of Technology

2003

Bachelor of Science in Architecture
Architecture
King Abdulaziz University

APPOINTMENTS:

2019 to Present

Assistant Professor

Department of Construction Management and Engineering
North Dakota State University, Fargo, ND-USA

Nancy Rossland, Director of Advancement, College of Engineering

“As a side note...we sure are lucky to have you here at NDSU! It was fun to see you interact with your students yesterday. You clearly have built a good rapport with them!”

Scott W. Pryor, Associate Dean for Undergraduate Programs at NDSU

Dear Aziz,

*I am writing to let you know that in the recent student survey on **HyFlex teaching**, one or more of your courses were identified as being particularly well-run in the HyFlex environment. You were also called out by name in open comments as someone who students appreciate. Some of the comments seen about you or your course(s) include:*

- *He is very attentive to students online as well as in the class. He is easy to understand and wants everyone to succeed in these challenging times. He is always asking if there are any questions and that is extremely nice when some students online aren't in the class to ask.*
- *It is helpful when the instructor actually writes with the homework problems and having other students teach via zoom or in person*

I'm including the Dean and your Chair on this email because I want to make sure they are aware of the efforts you have put in and that our students have noticed and appreciated it. I know they may have also reviewed the survey results, but there is a lot of data to pore through and I wanted to make sure your efforts were noted. Thank you for continuing to do all you can to support our students and make the best of a difficult situation! Best wishes for the rest of the semester. Sincerely.

Dr. Jerry Gao, Department Head 2016-2019 *“I certify that our department of Construction Management and Engineering (CM&E), with the assistance of our College of Engineering, strategically recruited Dr. Banawi to NDSU. Since then we have been observing Dr. Banawi blossom into a very productive assistant professor. Dr. Banawi has shown tremendous promise as a young investigator and is greatly valued as a research peer here at NDSU as he has potential with numerous department and inter-department collaborations.”*

Fall 2020

Adjunct Faculty Member

College of Architecture, Art and Design
Ajman University, Ajman, United Arab Emirates

2016 to Present

Faculty Member

US Green Building Council

- 2018 to 2019 **Adjunct Faculty Member**
Dar Al-Hekmah University, Jeddah, Saudi Arabia
Master of Architecture Program
- 2016 to 2019 **Department Head**
Department of Architectural Engineering
King Abdulaziz University, Rabigh, Saudi Arabia
Leadership Role: Head of the department of Architectural Engineering. Member of the College of Engineering Board. ABET accreditation activities included preparation of the self-study report, implementation of continuous improvement action plans, closing the loop of the continuous improvement actions, curriculum designed and reviewed, and introduction of Revit and BIM into the department design curriculum. The university is ranked 231 in the world by the QS World ranking.
- July to Aug 2018 **Visiting Research Scholar**
Department of Civil and Environmental Engineering
University of Pittsburgh, Pittsburgh, PA, USA
- 2013 to 2016 **Assistant Professor**
Department of Architecture Engineering
United Arab Emirates University, Al-Ain, United Arab Emirates
- 2010 to 2013 **Teaching Assistant**
Department of Civil and Environmental Engineering
University of Pittsburgh, PA, USA

RESEARCH AND JOURNAL PUBLICATIONS:

Highlights:

- *h-index 34, i10-index 102 on google scholar (abdulaziz.banawi@ndsu.edu)*
- *Secured research funds totaling \$425,888 USD*

Accepted/Published

1. Boating, S., **Banawi, A.** (2022) “Analyzing The Environmental And Economic Benefits Of Establishing A Centralized Construction And Demolition Waste Recycling Facility In North Dakota.” - *Submitted – Waste Management*
2. Ahiable, C., **Banawi, A.**, Gao, J., Boateng, S. “Identify Best Construction Practices in Fargo, North Dakota using Building Information Modeling.” *Submitted- Journal of Architectural Engineering, ASCE.*
3. Hu, X., Miao, R., Yu, Y., Megri, A., **Banawi, A.**, Olson, G. (2022) “Experimental Study to Analyze Feasibility of a Novel Panelized Ground-Source Thermoelectric System for Building Space Heating and Cooling, *Energies*, 15(1), 209.

4. Al-Thawadi, E., **Banawi, A.**, & Al-Ghamdi, S., (2021). Social impact assessment towards sustainable urban mobility in Qatar: Understanding behavioral change triggers. *Transportation Research Interdisciplinary Perspectives*, 9, 100295.
5. Gardner, H., Hasik, V., **Banawi, A.**, Olinzock, M., Bilec, M., (2020) " Whole Building Life Cycle Assessments of a Living Building" *Resources, Journal of Architectural Engineering, ASCE*.
6. **Banawi, A.**, Besné, A., Fonseca, D., & Ferrandiz, J. (2020). A Three Methods Proactive Improvement Model for Buildings Construction Processes. *Sustainability*, 12(10), 4335.
7. **Banawi, A.**, Aljobaly, O., Ahiabile, C. "A Comparative Review of Building Information Modeling Frameworks." *International Journal of Building Information Modeling* 2.2 (2019): 23-49.
8. Al-Nuaimi, S., **Banawi, A.**, Al-Ghamdi, S (2019). "Environmental and Economic Life Cycle Analysis of Primary Construction Materials Sourcing Under Geopolitical Uncertainties: A Case Study of Qatar." *Sustainability* **11**(21):6000
9. Sabbagh, M., Mansour, O., **Banawi, A.**, (2019). "Grease the Green Wheels: A Framework for Expediting the Green Building Movement in the Arab World." *Sustainability* **11**(20):5545
10. Ferrandiz, Jose, **Banawi, A.**, Peña, E. (2018). "Evaluating the benefits of introducing "BIM" based on Revit in construction courses, without changing the course schedule." *Universal Access in the Information Society*. 17.3: 491-501.
11. Ferrándiz, J., **Banawi, A.**, Peña, E. (2016). "BIM implementation in Construction Courses of the Architectural Engineering Department at United Arab Emirates University." *Universal Access in the Information Society*. 130-137. doi:10.13140/RG.2.2.30575.02725
12. **Banawi, A.**, Qadir, Q. (2015). "A Comparative Life Cycle Assessment Modeling of External Wall Construction Systems: Case Study Residential Complex in Al-Ain, United Arab Emirates." *International Journal of Construction Engineering and Management* 4.5: 191-200. doi:10.5923/j.ijcem.20150405.04
13. **Banawi, A.**, Bilec, M. (2014). "Applying Lean, Green, and Six-Sigma Framework to Improve Exterior Construction Process in Saudi Arabia." *Journal of Construction Engineering and Project Management*, 4(2), 12-22. doi:10.6106/JCEPM.2014.4.2.012 28.
14. **Banawi, A.**, Bilec, M. (2014). "A Framework to Improve Construction Processes: Integrating Lean, Green, and Six-Sigma." *International Journal of Construction Management*, 14(1), 58-71. doi:10.1080/15623599.2013.875266

Articles in Progress

1. Unmesa, R., **Banawi, A.** Analysing the shift of trend in construction procurement process assisted by new age technologies in the post COVID World." **In Progress**
2. Anam, N., **Banawi, A.** " Design a virtual reality for trench cave-ins for improving risk perception and worker safety." **In Progress**
3. **Banawi, A.** " Building Performance Assessment for Large Scale Hospitality Districts: A Case Study" **In Progress**
4. **Banawi, A.**, Alshali,R., Aldehaim, A. " Recycling Grey Water as a function of Green Buildings: Water Treatment and the Benefits of Reuse." International Journal of Sustainable Construction Engineering and Technology. **In Progress**
5. **Banawi, A.** "Investigating the Impact of Buildings Layouts on Users toward Green Practices-Design Phase." **In Progress**

CONFERENCE PEER REVIEWED PROCEEDINGS

1. Unmesa, R., **Banawi, A.** (2022, July). Development of A Smart Database for Construction Inventory Management Using Deep Learning to Eliminate Supply Chain Bottlenecks Post COVID-19. In International Conference on Applied Human Factors and Ergonomics, Springer, Cham.
2. Bi, B., Gao, J., **Banawi, A.** "A Comparative Life Cycle Assessment Study of Wood and Steel Materials on a Virtual Office Building at the Project End-of-Life Stage." ASC2022, Atlanta, Georgia
3. Ahiabile, C., **Banawi, A.** (2021, July). Progression of Human Experience Integration in the Construction Industry. In International Conference on Applied Human Factors and Ergonomics (pp. 45-50). Springer, Cham.
4. **Banawi, A.**, Gao, Z., Ahiabile, C., Bi, B. "Identifying Best Practices for the Construction of Residential Basements in Fargo, North Dakota, USA using Building Information Modeling (BIM)" 11th International Conference on Applied Human Factors and Ergonomics, JULY 16-20, 2020, San Diego, CA
5. Ferrandiz, J., Fonseca, D., **Banawi, A.** (2020). "BIM Academic Introduction Guidelines." 14th Annual BIM Academic Symposium, April 06-07, 2020, Norman, Oklahoma.
6. Gardener, H.M., Hasik, V., Olinzock, M., **Banawi, A.**, Bilec, M.M. (2019). "Whole Building Life Cycle Assessment of a Living Building: Final Results."

- Presentation, ACLCA, LCA XIX Conference, September 23-26, 2019, Tucson, Arizona.
7. Aljobaly, O. and **Banawi, A.**, “Evaluation of the Saudi Construction Industry for Adoption of Building Information Modelling.” In International Conference on Applied Human Factors and Ergonomics, JULY 24-28, 2019, Washington, DC (pp. 488-498). Springer, Cham.
 8. Gardner, H., Garcia, J., Hasik, V., Olinzock, M., **Banawi, A.**, Bilec, M., “End of Life Materials Assessment of a living Building” The 2019 Research and Education Conference AEESP, MAY 14–16, 2019, Arizona State University, Tempe, USA.
 9. Gardner, H., Garcia, J., Olinzock, M., **Banawi, A.**, Bilec, M., "End-of-Life Considerations in Whole Building Life Cycle Assessments: Focus on Living Building” the 26th CIRP Life Cycle Engineering Conference, May 07–09, 2019, Purdue University, Indiana, USA.
 10. Gardner, H., Garcia, J., Hasik, V., Rickenbacker, H., Olinzock, M., **Banawi, A.**, Bilec, M., “Living Building Life Cycle Assessment” Engineering Sustainability 2019, April 07–09, 2019, University of Pittsburgh, Pittsburgh, USA.
 11. **Banawi, A.** “A Framework to implement Building Information Modeling in Construction industry of Saudi Arabia,” 9th International Conference on Applied Human Factors Ergonomics, July 21–25, 2018, Orlando, USA.
 12. **Banawi, A.** “Barriers to Implement Building Information Modeling (BIM) into public project sector in Saudi Arabia,” 8th International Conference on Applied Human Factors Ergonomics, July 17–21, 2017, Los Angeles, USA.
 13. Ferrandiz, J., Fonseca, D., **Banawi, A.** (2016). "Mixed Method Assessment for BIM Implementation in the AEC Curriculum." *International Conference on Learning and Collaboration Technologies*. 213-222. Springer.
 14. **Banawi, A.**, Bilec, M. “A model combining three methods lean, green, and six-sigma (lg6) to identify waste in construction processes prior to construction phase.” World Sustainable Buildings, October 28–30, 2014, Barcelona, Spain.

PRESENTATIONS AND POSTERS

1. **Banawi, A.**, Boateng, S. (2021). “Analyzing the environmental and economic benefits of establishing a centralized construction and demolition waste recycling facility in North Dakota.” Presentation, Inaugural North Dakota Regional Environmental Conference, October 7th, 2021

2. **Banawi, A.**, Boateng, S. (2021). “Analyzing the environmental and economic benefits of establishing a centralized construction and demolition waste recycling facility in North Dakota.” Presentation, ND EPSCoR 2021 State Conference, April 14th, 2021
3. Boateng, S. **Banawi, A.**, Gao, J. (2020). “Analyzing the environmental and economic benefits of establishing a centralized construction and demolition waste recycling facility in North Dakota.” Presentation, ACLCA 2020 Virtual Conference, September 22-24, 2020
4. Bi, B. **Banawi, A.**, Gao, J. (2020). “A comparative study of wood and steel materials for office buildings at the end-of-life stage using life cycle assessment (LCA).” ACLCA 2020 Virtual Conference, September 22-24, 2020
5. **Banawi, A.**, Gao, Z., Ahiable, C., Bi, B. “Improving Basement Construction Practices Using BIM” 4th International Conference on Fossil and Renewable Energy, July 16–20, 2020, Houston, TX, USA.
6. Gardener, H.M., Hasik, V., Olinzock, M., **Banawi, A.**, Bilec, M.M. (2019). “Whole Building Life Cycle Assessment of a Living Building: Final Results.” Presentation, ACLCA, LCA XIX Conference, September 23-26, 2019, Tucson, Arizona.
7. **Banawi, A.**, “The Journey of Launching the Architectural Engineering (AE) Program at King Abdulaziz University: Challenges and Strategies” Presentation, Dar Al-Hekma Architectural Conference 2019, March 10 – 11, 2019, Jeddah, Saudi Arabia.
8. Aljobaly, O., **Banawi, A.**, “ Evaluation of the Saudi construction industry for adoption of building information modeling” Presentation, Dar Al-Hekma Architectural Conference 2019, March 10 – 11, 2019, Jeddah, Saudi Arabia.
9. **Banawi, A.**, Qadir, G., 2015 “Identify the Barriers to Widely Construct Green Buildings in United Arab Emirates – Case Study.” Poster, Engineering Sustainability 2015, April 19-21, 2015, Pittsburgh, Pennsylvania.
10. **Banawi, A.**, Bilec, M. “Applying Lean, Green, and Six-Sigma Framework to Improve Exterior Construction Process in Saudi Arabia.” Poster, Engineering Sustainability 2013, April 7-9, 2013, Pittsburgh, Pennsylvania.

GRANTS

DOE – The Energy Tech University Prize -Pending

Project Title: Dual-Mode Solar Thermal Collector

Project duration: 12 months

Fund Guaranteed: \$250,000

NSF - Funded Research Experiences for Teachers Grant -Pending

Project Title: Improving Construction Risk Mitigation and Safety Management During Winter Season through the Application of BIM and Virtual Reality. Case Study: Fargo, North Dakota

Project duration: 3 Months -

Fund Guaranteed: \$4,000

Environmental Protection Agency (US EPA) -Pending

Project Title: Development of a Stationary Sensor Station for Real-Time, Long-Term Indoor Air Quality (IAQ) Monitoring in Homes and School Classrooms.

Project duration: 12 Month

Fund Guaranteed: \$24,998

EPSCoR EQUIPMNET FUNDING – North Dakota State University – Fall 2021-

Not awarded

Project Title: The Digital Construction Laboratory (DC Lab) at North Dakota State University.

Project duration: 10 Month

Fund Guaranteed: \$45,878

EPSCoR EQUIPMNET FUNDING – North Dakota State University – Fall 2021-Not

awarded

Project Title: The Digital Construction Laboratory (DC Lab) at North Dakota State University.

Project duration: 10 Month

Fund Guaranteed: \$39,900

EPSCoR SEED FUNDING – North Dakota State University – Fall 2021-Not

awarded

Project Title: Design a Virtual Reality for Trench Cave-ins for Improving Risk Perception and Workers Safety.

Project duration: 10 Month

Fund Guaranteed: \$15,000

The National Institute of Food and Agriculture (NIFA)– USDA – Pending

Project Title: Utilization of Agricultural waste to enhance the production of sustainable construction materials.

Project duration: 24 Month

Fund Guaranteed: \$179,210

NSF – Engineering Research Initiation (ERI) – Fall 2021- Not awarded

Project Title: Developing a Proactive Model to Eliminate Supply Chain Bottlenecks of Construction Materials Post COVID-19 Using Deep Learning

Project duration: 24 Month

Fund Guaranteed: \$183,950

North Dakota Department of Commerce – Department of Energy (US DOE) - Current

Project Title: Building energy efficiency improvement of A. Glenn Hill Center at North Dakota State University

Project duration: 12 Month

Fund Guaranteed: \$27,000

North Dakota Department of Commerce – Foundation & Alumni Association (NDSUFAA) – Not awarded

Project Title: E2NDSU: An Energy-Efficiency Campus

Project duration: 24 Month

Fund Guaranteed: \$35,200

NDSU Foundation & Alumni Association (NDSUFAA) – Pending

Project Title: Development of Interactive Research Portal for the College of Engineering-NDSU

Project duration: 6 Month

Fund Guaranteed: \$3,964

CIS-Civil Infrastructure System – NSF – Pending

Project Title: Developing an Interactive model to Integrate human experience with Artificial Intelligence in the Construction Industry

Project duration: 60 Month

Fund Guaranteed: \$573,321

MN Department of Transportation- (MN DOT) – Pending

Project Title: Cost Estimate of B vs C Asphalt Binders

Project duration: 24 Month

Fund Guaranteed: \$157,784

Mixed Reality Building Information Modeling (Mr. BIM) Laboratory -NDSU Foundation & Alumni Association (NDSUFAA)-Pending

Project Title: Mixed Reality Building Information Modeling (Mr. BIM) Laboratory

Project duration: 36 Month

Fund Guaranteed: \$74,821

EPSCoR SEED FUNDING – North Dakota State University – Fall 2020

Project Title: Analyzing the environmental and economic benefits of establishing a centralized construction and demolition waste recycling facility in North Dakota.

Project duration: 10 Month

Fund Guaranteed: \$9,990

North Dakota Department of Commerce – Department of Energy (US DOE) - Current

Project Title: Building Energy Analysis and Audit of a. Glenn Hill Center at North Dakota State University
Project duration: 12 Month
Fund Guaranteed: \$20,000

Research Development Travel Award RCA– North Dakota State University – Fall 2020

Project Title: Analyzing the environmental and economic benefits of establishing a centralized construction and demolition waste recycling facility in North Dakota.
Project duration: NA
Fund Guaranteed: \$500

EPSCoR SEED FUNDING – North Dakota State University – Fall 2019

Project Title: Proactive Improving Model for Buildings Construction Processes applying Building Information Modeling (BIM)
Project duration: 8 Month
Fund Guaranteed: \$9,888

Explorations of Trust in AR, VR, and Smart Devices -Facebook Corporation -Not Awarded

Project Title: Applying Virtual Reality in integrating Human experience with Artificial intelligence in the Building Industry.
Project duration: 24 Month
Fund Guaranteed: \$73,535

Research Need Statement – Charles Panko Foundation – Not Awarded

Project Title: State-wide Building Information Modeling (BIM) Implementation Strategies for Building Contractors
Project duration: 15 Month
Funding Request: \$180,000

General Program - King Abdulaziz University, Spring 2018

Project Title: Contextualizing the Concept of High-Performance Building in the Saudi Religious Tourism Industry
Project duration: 1 Year
Fund Guaranteed: \$12,000

Distinguished Study Program – King Abdulaziz University, Spring 2018

Project Title: Grease the Green Wheels: A Framework for Expediting the Green Building Movement in the Arab Region
Project duration: 1 Year
Fund Guaranteed: \$ 14,000

Development Commission of Madinah Al-Manawarh, Spring 2017

Project Title: Developing the guidelines for Green building for central area in Madinah Al-Manawarah

Project duration: 1 Year
Fund Guaranteed: \$330,000

UAEU Research Startup Grant Competition, Spring 2014

Project Title: Greening Construction Industry, identify obstacles and solutions
Project duration: 3 Years
Fund Guaranteed: \$40,000

CONCEPT PAPER

The Center for Construction Research and Training – Small Study Program – Pending

Project Title: Development of A Smart Database for Construction Inventory Management Using Deep Learning to Eliminate Supply Chain Bottlenecks Post COVID-19

Research Need Statement – Charles Panko Foundation – Pending

Project Title: GHG Inventory and energy consumption for North Dakota State University campus
Project duration: 12 Month

Research Need Statement – Charles Panko Foundation – Pending

Project Title: an interactive energy map for the Fargo downtown
Project duration: 12 Month

The Center for Construction Research and Training – Small Study Program – Pending

Project Title: Design a virtual reality for trench cave-ins for improving risk perception and worker safety.

Department of Energy -FOA-0002196: Buildings Energy Efficiency Frontiers & Innovation Technologies (BENEFIT) – 2020

Project Title: Development and field validation of a novel integrated HVAC system with the use of dual-purpose solar thermal collectors for heat and cold collection.

Department of Energy -FOA-0002196: Buildings Energy Efficiency Frontiers & Innovation Technologies (BENEFIT) – 2020

Project Title: Curriculum Development with High Energy-Efficient and Smart Buildings in Mind.

The Center for Construction Research and Training – Small Study Program - 2020

Project Title: A Pre-Evaluation and Interactive Model for Enhancing the Implementation of Building Information Modeling (BIM) for Building Contractors.

INVITED AND KEYNOTE SPEECHES

Guest speaker: Building Information Modeling 2022, CE Structural Steel Design, North Dakota State University

Guest speaker: Green Buildings initiatives in Saudi Arabia, (Earth Day) 2018, Tabuk University, Tabuk, Saudi Arabia

Guest speaker: Why Green Design is Matter, 2018, Effat University, Jeddah, Saudi Arabia

Guest speaker: Topic: (Innovation101), innovation week 2015, College of Engineering, UAEU, Al-Ain, UAE

TEACHING EXPERIENCE

Undergraduate:

North Dakota State University: 2019 – current

CME 488: Construction Management Capstone: Spring 2022 enrollment 41

This course focuses on applying knowledge and skills learned in the previous courses, a look into construction management process, interactions, marketing, estimating, scheduling, and other functions for a management plan for a construction project. Several advanced methods and software are applied including Autodesk Construction Cloud, Virtual Design Construction and Building Information Modeling (BIM)

CME 200: Construction Documents and Codes. Fall 21 enrollment 51

This course introduces construction working drawings; methods and materials of construction; and building codes.

CME 315: Specifications and Contracts: Spring 2021 (HyFlex) enrollment 70

This course provides a discussion of various types of construction contracts; contract administration; specifications using CSI and AIA documents.

Students' quotes from course and instructor final evaluation for Fall 2021:

"Dude is amazing. Please don't change"

"Aziz is the best and most caring professor I have ever had, I hope to have him again in the future. His courses are always my favorite."

"I enjoyed this class very much and thought that Aziz was a great professor."

"Very good professor! He really cares about his students and wants them to succeed. I hope to have him as a professor for other classes."

"Best professor in the department. He wants the students to understand and succeed. I wish he thought more classes. Hands down the most amazing professor. If I could take every class from him I would. He explains thing so well and really cares about the students understanding the material."

CME 380: Cost Estimating: Fall 2019, Fall 2020 (HyFlex) enrollment 57

This course introduces the methods and techniques of conceptual and detailed construction estimating, including: quantity takeoffs; costs related to labor, materials, equipment, overhead and profit; and bidding strategies.

Students' quotes from course and instructor final evaluation for Fall 2020:

"great professor. is always focused on keeping you engaged in the class and helps you with any questions you have. very quick and accurate answers to any question with a great easy to understand answer. 10/10 would take again."

"I just want to say Aziz was the best professor I had this semester, by far. He genuinely cares about his students and was more than willing to help out in any way that he possibly can. 10/10 great professor."

"Very well taught class. He really did everything he could to help his students succeed in this class."

"Best professor in the CME department. He really cares about the students and their success rather than just being there to teach. I would take all my classes from him. He was easy to understand and really cared."

Scott W. Pryor, Associate Dean for Undergraduate Programs at NDSU

Dear Aziz,

*I am writing to let you know that in the recent student survey on **HyFlex teaching**, one or more of your courses were identified as being particularly well-run in the HyFlex environment. You were also called out by name in open comments as someone who students appreciate. Some of the comments seen about you or your course(s) include:*

- He is very attentive to students online as well as in the class. He is easy to understand and wants everyone to succeed in these challenging times. He is always asking if there are any questions and that is extremely nice when some students online aren't in the class to ask.*
- It is helpful when the instructor actually writes with the homework problems and having other students teach via zoom or in person*

I'm including the Dean and your Chair on this email because I want to make sure they are aware of the efforts you have put in and that our students have noticed and appreciated it. I know they may have also reviewed the survey results, but there is a lot of data to pore through and I wanted to make sure your efforts were noted. Thank you for continuing to do all you can to support our students and make the best of a difficult situation! Best wishes for the rest of the semester.

Sincerely,"

Graduate:

CME 711: Construction Cost Estimating. 3 Credits Spring 2019 - Current enrollment 20 (In class and Online)

This course provides an advanced discussion of quantity takeoffs; labor, materials, equipment, and overhead costs; profit; and bidding strategies for construction projects.

King Abdulaziz University: 2016 to 2018

AREN 200: Computer Applications in Buildings Design: Fall 2018, enrollment 5

To introduce students to industry standard software packages and its application in architecture. Focus is on enabling skill acquisition in the use of Building Information Modeling (BIM) mainly Revit. Course introduces 2D drafting and 3D modeling using Revit

CEN 497: Selected Topic in Civil Engineering: Fall 2016, Spring & Fall 2017 enrollment 10

Develop skills in computer-aided drafting and design (CADD) using AutoCAD software. Learn the features and considerations associated with the computer as a drafting/design tool.

Graduate:

AR-696: Advance Project Preparation Research

This course will help students to prepare and plan for the Master degree final project, alongside exercises in critical thinking that engage one of four areas of focus; Theory, Technology, Environment, and Urbanism. Topics covered include; case study analysis, project planning and program, project description and documentation.

AR-695: Special Topic in Architecture

This course will consist of in-depth study of a current architectural topic. Topic will vary each time the course is offered and will be focused on state-of-the concepts that are not addressed in current course selection.

Undergraduate:

United Arab Emirates University: 2013 - 2016

GENG 215: Introduction to Ethics and Design: Fall 2013, enrollment 20 to 35

This course introduces students to Engineering Ethics, as a set of moral principles that relate to Engineering projects and designs. The course explores creative ways of reconciling conflicting moral claims.

Students' quotes from course and instructor final evaluation for Fall 2013:

"Ethics is one of the difficult course in CRU and hard to understand. However, our doctor Abdulaziz made it very easy and enjoyable. He's like our big brother. He did his best to help us. I cannot imagine myself being taught ethics by another instructor. I think he's without doubt the best who's teaching this subject in UAEU. He's using his previous experience and knowledge to simplify the course. What a perfect doctor he is."

"The most enjoyable and interesting course I ever attend! Seriously I enjoyed every second on it, I loved the course I learned a lot from ethics and I enjoyed the design part. Additionally, this course is the definition of reality, I learned, I do it in real life! Besides, Dr. Abdul Aziz was way too helpful, even if I'm yawning in his class I got the idea because of his examples from life. Thanks, because I attend a class like this, it will be a memorable course!"

ARCH 315: Building Construction Systems: Spring 2014 - Fall 2014, Spring 2015 enrollment 9-15

The course introduces students to common building materials and their properties, and construction processes ranging from site planning to construction. Construction technology, systems, methods and techniques are selected with emphasis on local applications and practice. Simple structural systems, construction methods, and building components are covered, including foundations, structural components, wall systems, and floor and roof systems.

ARCH 335: Intermediate Building Design Studio: Spring 2014, Fall 2014, Spring 2015, Fall 2015 enrollment 9-12

This course aims at developing students' analytical skills and awareness of the building physical, social and cultural contexts. Students are introduced to the engineering design

process, as well as assessment and application of alternative structural, mechanical and electrical systems.

ARCH 430: Integrated Building Design Studio: Fall 2013 enrollment 10

This course develops a comprehensive design process with focus on systems design and integration of a mixed-use building, issues of technology, ecology and energy.

ARCH 503: Building Construction Details: Fall 2015, enrollment 8

Related to function; evaluation of technical and aesthetic aspects of interior and exterior finishing materials. Study of different construction methods of architectural spaces and the selection of suitable finishing materials; technical criteria for selection and evaluation of finishing materials; architectural working details and workshop drawings

ADDITIONAL COURSES TAUGHT

Ajman University – Undergraduate: Online

- BCM 321: Construction Project Management I
 - Fall2020, enrollment 7
- BCM 320: Construction Estimation I
 - Fall 2020 enrollment 8

Dar Al-Hekmah University- Graduate

- ARCH 6402: Sustainable Design Studio
 - Spring 2018-19, enrollment 16
 - [Final project won first place: Honorable Mention in Architectural Design / Cultural Architecture](#)
- ARCE 6306: Construction Systems and Information Modeling
 - Summer 2018-19, enrollment 15
 - Summer 2019-20, enrollment 9 (Online)

UAEU- Undergraduate

- AREN: 210: History and Theory of Architecture
 - Fall2018, enrollment 4
- ARCH 585: Graduation Project I
 - Spring 2014, Fall2014, Fall 2015 enrollment 4
- ARCH 590: Graduation Project II:
 - Fall2014, Spring 2015 enrollment 4

COURSE DEVELOPMENT

North Dakota State University

CME213 Applications of Building Information Modeling (BIM) in Building Construction

This course provides students with an introduction to Building Information Modeling (BIM); principles, applications, and methods. Discussion the role and the impacts of BIM on the design, construction, and engineering management of buildings.

King Abdulaziz University

AREN 473 Building Information Modeling

The foundational Building Information Modeling course introduces techniques for creating, managing, and applying of building information models in the building design and construction process. The course covers processes and tools for creating, organizing, and working with 2D and 3D computer representations of building components and geometries to produce models used in architectural design, construction planning and documentation, rendering and visualization, simulation and analysis.

AREN 480 Design for Sustainability: LEED Lab

This course is designed to enable students in using engineering principles in developing innovative strategies to positively influence the human life, the planet's environment, and the productivity of engineering infrastructure. Specifically, the course will provide students with an understanding of the principles of design and construction of green structures applying LEED rating systems. Moreover, this course focuses on strategies and metrics for "greening" existing buildings, LEED Laboratory will specifically explore the criteria and documentation needed to evaluate and certify buildings in the LEED for Existing Buildings: Operations and Maintenance v4.1 rating system.

United Arab Emirates University

ARCH 315: Building Construction Systems:

Fall 2014: Course materials including; lectures, assignments, term project, and exams are converted to be used with iPad. This step changes the delivery method and makes it interactive and ease the communication between the instructor and students. Where students can get feedback on their work in no time.

Spring 2015: Revit and Navisworks are introduced to students and integrated with delivery methods for delivering homework and term project. These tools help in explaining the different building systems and the traditional construction process.

ARCH 335: Intermediate Building Design Studio:

Spring 2015: The Integrated Project Delivery (IPD) process is introduced for the first time in this class to deliver the term project. The IPD considered being essential in order to adopt Building Information Modeling (BIM). For that, tools such as Revit Architecture and Revit Structure, daylight Analysis, energy performance analysis, and clash detection are introduced to help students deliver and validate their solutions at the same time.

Fall 2015: Substantial revision to an existing course in order to move it from a focus in traditional architecture design to a course emphasizing engineering design process and

the integration of spatial design with structural, electrical, mechanical and construction systems.

STUDENT ADVISING

Undergraduate Students

Total of 80 undergraduate students

Graduate Students

Doctoral Students

Adviser (2022): Mr. Cyril Ahiable, Doctor of Philosophy, Civil Engineering

Thesis title: TBA

Adviser (2021): Ms. Unmesa Ray, Doctor of Philosophy, Civil Engineering

Thesis title: Development of A Smart Database for Construction Inventory Management Using Deep Learning to Eliminate Supply Chain Bottlenecks Post COVID-19

Co-Advisor (2015): Rauda Saeed Al Saadi, Doctor of Philosophy, graduated June 2015
(Director General of the Executive Committee Bureau and representative of the Emirate of Abu Dhabi)

Thesis title:

A framework for Guiding the Briefing Process in Public-Private Partnerships in the UAE Construction Industry.

Master Students

Adviser (2021): Mr. Nemar Anam, Master of Construction Management and Engineering

Thesis title: Design a virtual reality for trench cave-ins for improving risk perception and worker safety

Co-Advisor (2021): Mr. Taha Khan, Master of Construction Management and Engineering

Thesis title: TBA

Adviser (2020): Mr. Simon Boateng, Master of Construction Management and Engineering

Thesis title: “An interactive Implementation Model for Building Information Model”, North Dakota State University, Department of Construction Management and Engineering.

Co- Adviser (2019): Mr. Bin BI, Master of Construction Management and Engineering

Thesis title: “An End of Life Environmental Assessment for Structural Materials”, North Dakota State University, Department of Construction Management and Engineering.

Adviser (2019): Mr. Cyril Ahiable, Master of Construction Management and Engineering

Thesis title: "Identify best practices for construction processes applying Building Information Modeling", North Dakota State University, Department of Construction Management and Engineering.

Among the top six finalist the 3mintes thesis competition 2021

Adviser (2019): Obaid Al-Jobali, Master of Architecture

Thesis title: Building Information Modeling Framework Implementation in Saudi Arabia Construction Industry – a case study, King Abdulaziz University, Department of Architecture.

Co-Adviser (2015): Fatima Al Wahshi, Master of Sciences in Environmental Engineering. (Environment Engineer at Abu Dhabi Water & Electricity Authority)

Thesis title: The development of a Health, Safety and Environment Management System for an integrated gender separated campus in the Middle East region – a case study, UAE University.

Summer Internship – Student supervisor

Asmaa Dhanhani (2010), Al Hoson Consulting Engineering

Aysha Al Muhairi (2010), Al Ain City Municipality

Basma Ahmed (2009), Al Fara'a Group

STUDENT COMMITTEES

Undergraduate Students

Graduation Project Spring (2014), Civil and Environmental Engineering Department

Naila Mohamed

Fatima Abdul Razzaq Khouri

Sumayya Mohammed Alhebsi

Mariam Salem Mohammed Al Dhaheri

Graduation Project Spring (2014), Architectural Engineering Department

Maryam Saeed Obaid Daen

Shaikha Salmeen Al Alawi

Sara Saeed Saif Al Reyami

Graduation Project Spring (2014), Architectural Engineering Department

Fakhra Mubarak Mohammed Barman

Noura Hareb Ali Obaid

Kathaya Khalifa Mubarak Saif

Graduate Committees

Adiki Essegbey, Civil Eng, expected graduation, May 2021
North Dakota State University

Thesis title:

Conceptual Cost Estimation Models for Bridge Projects

Adiki Essegbey, Civil Eng, expected graduation, May 2021
North Dakota State University

Thesis title:

Conceptual Cost Estimation Models for Bridge Projects

Xiaoou Hu, Mech Eng, expected graduation, May 2026
North Dakota State University

Thesis title:

Rui Miao, Mech Eng, expected graduation, May 2022
North Dakota State University

Thesis title:

Development and Utilization of Ground and Solar Energy Systems for Space Heating and Cooling in Buildings

Jose Ferrandiz, ARCH, expected graduation, October 2018
Escola Tècnica Superior d'Arquitectura de Barcelona (ETSAB), Spain

Thesis title:

BIM Implementation in the AEC Curriculum:

A quasi-experimental case study of the architectural engineering bachelor's degree at the United Arab Emirates University

COMMITTEES

North Dakota State University
Faculty Senate Executive Committee
Proxy to Dr. Eric Asa, Spring 2022.

College of Engineering, Academic Affairs
Task force team – Collaboration NDSU and Dar Alhekmah University, Saudi Arabia,
2021 to present

College of Engineering, Academic Affairs
North Dakota State University, 2020

Department of Civil, Construction, and Environmental Engineering
Faculty Committee (Co-Chair)
North Dakota State University, 2021 to present

Department of Civil, Construction, and Environmental Engineering
HOC – Lab Committee

North Dakota State University, 2021

Department of Construction Management and Engineering, AGC Student Organization, Faculty Advisor

North Dakota State University, 2020 to present

- Won first place in the ASC Commercial I Division competition 2020
- Won first place in the ASC Highway Division competition 2021

Department of Construction Management and Engineering, Scholarship Committee

North Dakota State University, 2020 to present

Department of Construction Management and Engineering, Curriculum and Academic Affairs Committee

North Dakota State University, 2020 to present

Department of Construction Management and Engineering, Faculty Meeting Secretary

North Dakota State University, 2020 to present

Architectural Department Committee (Chair)

King Abdulaziz University, 2016 to 2019

Oversee department program, faculty and staff, and manage allocated budget.

Recruit faculty and staff members.

Prepare specification and equip labs.

Establish mission, vision, and the program outcomes and objectives.

Apply university rule and procedures.

College Information Technology

King Abdulaziz University, 2016 to 2019

Maintain and update the college website on a monthly basis.

Faculty training.

Supervise computer labs and equipment.

Maintain software licenses, keeping them up to date.

Provide essential technical support to faculty members.

Design Committee (Chair)

United Arab Emirates University, Fall 2013 to 2016

This committee is in charge of developing and reviewing all aspects related to the design courses, including courses objectives, deliverables, syllabus, materials, and teaching procedure according to the program education objectives.

Accreditation Board for Engineering and Technology (ABET) Committee

United Arab Emirates University, Fall 2014 to 2016

This committee is in charge of preparing the ABET self-study report, as well as developing an action plan to respond to comments made by the ABET evaluators if applicable.

Assigned role:

- *a member of a team put together by the chair to implement the continuous improvement plan for the AE study plan.*
- *Team leader for the media group, one of five teams that put together for ABET pre-visit activities.*

Student Society Advisor

United Arab Emirates University, Fall 2014-2016

In charge of coordinating and managing related student activities including guest speakers, site filed visits, and social and professional activities.

Industry Liaison (Chair)

United Arab Emirates University, Fall 2014

Maintain and expand the industry training firm networks via meetings with owners and faculty on-site visits arrangements.

SERVICES

Community Services:

Family Nutrition Program (FNP)/SNAP-Ed for ND

- Design, build, install food pantry for NDSU students

North Dakota State University

College of Engineering:

- CCEE represented at Discover NDSU, FA 2021
- Engineering Visit Day – Present to the parents with students, FA2021
- Robot Design Judge, First Lego Competition, Fargo, North Dakota 2020

Dar Al-Hekmah University

- Advisor Board Member – Dar Al-Hekmah University, Jeddah, Saudi Arabia 2020-2021.
- Curriculum Reviewer, Master of Architecture Program.
-

United Arab Emirates University, Architectural Engineering Department

1. Representative

- United Arab Emirates University: Freshman Orientation Day, Fall 2014.
- United Arab Emirates University: College of Engineering Open Day: Spring 2014.

2. Media Specialist, Spring 2014 to 2016

- Design, develop, and approve department media and graphics-related works.

United Arab Emirates University, School of Engineering:

Lead United Arab Emirates University Ethics Team at the IEEE Ethics Competition 2014 at Khalifa University, Sharjah, UAE.

- Came 4th out of 15 teams from 8 different schools nationwide

Professional Services

- **Special Awards Judge** in Renewable Energy – Intel International Science and Engineering Fair (Intel ISEF) 2012 Pittsburgh, PA, USA.
- **Associate Consultant:** Sabbag Engineering Consultants (SECA) - Jeddah, Saudi Arabia 2016. Oversaw work process of new SECA branch in Dubai, UAE.
- **Associate Consultant:** Nabil Abbas Architects - Jeddah, Saudi Arabia 2016 - Present. Type of services: BIM and LEED rating systems
- **Engineering Expert Witness:** Nabil Abbas Architects - Jeddah, Saudi Arabia 2016-Present

Workshop training services:

- LEED Green Associate Exam Preparation workshop

This course prepares applicants for the LEED Green Associate professional credential exam which is designed to test general knowledge of green building practices. Workshop ran for five days, five hours per session.

Trainees’ quotes from the course final evaluation for 2018:

“The Lectures and discussions were informative and creative (we are proud to have such people like you in Jeddah).”

“The rich data and the amazing doctor who tried to spread and deliver all the information in simple generous way, the workshop made all my data organized.”

“providing excellent hands-on experience by LEED professional”

“I’d like to thank Doctor Aziz for his great markable effort. Thank you for giving this chance for women. Thank you for this chance for better future and better planet.”

PEER REVIEW SERVICE

The International Journal of Construction Management.
 The Journal of Construction Engineering and Project Management.
 The Journal of Civil Engineering and Architecture
 Associated School of Construction (ASC)
 The Journal of Architectural Engineering (ASCE)
 The Journal of Sustainability (MDPI)

Editorial board member of:

Guest-Editor: Sustainable Construction Materials and Construction Technology- Sustainability
 Insight – Civil Engineering Journal
 Editor-In Chief for Building Technology section in AL-Omran Magazine since 2019
 Information Engineering and Applied Computing since 2018 – Singapore
 Building Information Modeling Arabia since 2018

PROFESSIONAL EXPERIENCE

LEED Projects: US Green Buildings Council:

Broadway Block. San Diego, CA - USA

Help in attaining and applying for the following credits:
Indoor Environmental Quality: Daylight

Al-Khairaiji Architects Head Office. Jeddah Saudi Arabia

Help in attaining and applying for the following credits:
Indoor Environmental Quality: Daylight
Energy and Atmosphere: Minimum Energy Performance

2003 to 2006: Architect, PARSONS Ltd., Industrial Yanbu, Saudi Arabia

Manage and overseas design works for small projects including residential and public facilities.

Train fresh graduates on the Fire Code, International Building Code and Saudi Building Code.

Reviewed materials specifications.

Reviewed private projects and initiated permissions.

Performed site inspection and applying quality.

Prepared cost estimates.

Prepared and chaired meetings for engineers in training and their mentors.

Performed value engineering on three different projects including: Royal commission headquarters in Riyadh, a boys' primary school, and Yanbu Technical Institute.

2002 to 2003 Architect, Harasani Architects, Jeddah, Saudi Arabia

Contributed to the design of the Saudi Commission for Tourism & Antiquities headquarters in Riyadh, Saudi Arabia.

Prepared design works for residential and commercial projects.

Prepared cost estimates, construction plans, details, and specifications.

AWARDS AND RECOGNITIONS

Personnel

Teacher appreciation Award by Students SP 2021

The Sheila and Robert Challey Institute for Global Innovation & Growth fellowship program, FA 2020 – Not awarded

The winner of best department leadership practices 2019. King Abdulaziz University.

King Abdullah Scholarship 2006, and 2009.

Adviser

First place in the ASC Heavy Civil I Division competition 2021

First place in the ASC Commercial I Division competition 2020

First Place: Honorable Mention in Architectural Design / Cultural Architecture

PROFESSIONAL LICENSES

- **Six-Sigma Green Belt** by the University of Pittsburgh, 2011
- **LEED Green Associate** by USGBC, 2012 – present
- **Building Performance Analyst** by Autodesk, 2015 – present
- **Student and Educator Expert** by Autodesk, 2016 - present

- *US Green Building Council Faculty member* by USGBC, 2017 – present
- *SIGMA LAMBDA CHI* by International Construction Honor Society, 2020 – present

PROFESSIONAL DEVELOPMENT WORKSHOPS

- 14th BIM Academic Symposium Virtual Event, AIC, Herndon, VA, March 2021
- WebEd: Outlook for Construction Industry Priorities in Washington, D.C. – Virtual March 2021
- Aspire Mini-Course: Teaching Online in Summer & Fall 2020: How to Design and Run an Effective and Equitable Online Course
- Workshops: NSF CAREER
- NDSU Leadership Development Program, Fargo, ND, Feb – May, 2020
- Searching for Excellence: Search committee training 2020, NDSU, Fargo
- ASEE - 2020 National Effective Teaching Institute - 1A, San Diego, CA
- PTE 2019, NDSU
- Safety 2019
- Privacy data
- The Total Leader Program LMI - Module 1 Personal Productivity, 2018
- Diploma of Professional Development in Teaching and Learning, King Abdulaziz University, 2016
the diploma includes the following topics:
 - Design course outcomes
 - NCAAA framework
 - Develop Students learning outcomes
 - Design assessment methods
 - Teaching and learning theories
 - Managing feedback
 - Better mentoring.
- Fundamentals of establishing a research, King Abdulaziz University, Jeddah Saudi Arabia, 2016.
- 5-hour iBooks Author Challenge, submitted work won the iBook Excellence Award, United Arab Emirates University, UAE, 2014.
- Chalkup workshop: streamlined tool for assignments, discussion boards, flashcards and materials distribution, United Arab Emirates University, UAE, 2014.
- 5-Days intensive Revit workshop, United Arab Emirates University, UAE, 2014.
- Two-Day Teaching Workshop, University of Pittsburgh, Pittsburgh, PA, USA, 2013.
- Becoming a More Effective Research Mentor, University of Pittsburgh, PA, USA, 2012.