

Dr./Prof. M. Zineddin

Work Address

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EXPERTISE

With over 35 years of diverse experience in physical protection research and design, physical security of critical infrastructures and nuclear security programs development, higher education, professional development and manpower training, Dr. Zineddin is highly accomplished in building and nurturing relationships, leading projects from start to finish, implementing effective program strategies, and guiding individuals towards success. His exceptional communication skills allow him to form cross-functional teams and make critical decisions even under pressure. As a versatile and transformative leader, he thrives in independently creating opportunities that align with organizational goals. In addition, his impressive administration abilities are matched by his intellectual prowess in project management, teaching, research, and program development at various levels within an institution.

His core strengths include developing and implementing nuclear newcomer strategies, developing R&D programs, managing projects, recruiting, coaching and staff development, developing contracts and proposals, managing nuclear security, developing and implementing regulations and procedures, facilitating group sessions, including professional consultations and industrial experience in:

- National and international standards and best practices in nuclear security and culture
- Excellence and continued improvement in organizational and individual performance
- Nuclear security physical protection systems' design specifications, construction, implementation, commissioning, and evaluation
- Nuclear security training and education programs development and implementation
- Nuclear security culture program development, implementation, and evaluation
- Development and implementation of nuclear security policies, strategies, procedures, manuals, and process description in accordance with International Atomic Energy Agency (IAEA), WANO, INPO, and UAE Federal Authority for Nuclear Regulation (FANR)
- Threat, vulnerability, risk, and security assessments of critical infrastructures
- Leadership development and performance management
- Physical security, blast, shock, and impact mitigation
- Anti-terrorist assessment, analysis, and design

- Analysis, design, testing and evaluation of various structural elements
- Analysis and design of blast resistant, ballistic and fragment systems
- Maritime protection and physical security barriers
- Explosive safety for industrial, chemical, and petrochemical facilities
- Computer modeling and simulation
- Structural behavior under severe short duration dynamic and seismic loads
- Nonlinear behavior of structures under impulsive loads
- Modern protective structures analysis, design, and evaluation
- Development of precision impact testing techniques for structural assessment
- Computer codes validation and verification
- Development of design recommendations for enhancing structural performance, physical security and safety of buildings, facilities, and systems
- Analysis, design and testing of physical security systems
- Numerical simulation of concrete and steel structural responses, and experimental studies of structural behavior
- Analysis and design of concrete and steel structural systems
- Development of safety and security technical manuals, and standard for blast protection of buildings

PROFESSIONAL, ACADEMIC & ADMINISTRATIVE POSITIONS

- Invited key speaker at the World Nuclear University (WNU) Summer Institute 2023 (SI 23), Osaka Japan, 26 June – 28 July 2023.
- Member of the International Technical Review Committee of the Nuclear Security for Scientists, Technicians and Engineers' Academy Certification Elective, the World Institute of Nuclear Security (WINS).
- First ever Security Manager to receive the CEO Medal for the Barakah Nuclear Power Plant Excellent Award in the Distinguished Managerial Category, 08 January 2019.
- Founding Manager of the Physical Security Systems Design, Development, construction, Commissioning and Engineering, Emirates Nuclear Energy Corporation (ENEC), Abu Dhabi, UAE, (Dec '18 – May '20).
- Founding Manager of the Nuclear Security Education and Training Department, Security and Safeguards Directorate, Emirates Nuclear Energy Corporation (ENEC), Abu Dhabi, UAE, (Jan '14 – June '23).
- Deputy Director, Institute for International and Civil Security, Khalifa University of Science, Technology and Applied Research (KUSTAR), Abu Dhabi, (Aug. '13 –Jan. '14).
- Professor in Practice of Civil Engineering and International & Civil Security, Khalifa University of Science, Technology and Applied Research (KUSTAR), Abu Dhabi campus, ('13 - '14).
- Founding Chair, Department of Civil Engineering, Khalifa University of Science, Technology and Applied Research (KUSTAR), Abu Dhabi campus, ('11- '14).

- Co-Founder of Institute for International and Civil Security, Khalifa University of science, Technology and Applied Research (KUSTAR) Abu Dhabi campus, ('11-'14).
- Director of Joint Programs and Associate Professor in practice, Khalifa University of Science, Technology and Applied Research (KUSTAR), Abu Dhabi campus, ('11-'14).
- Gulf Nuclear Energy Infrastructure Institute Project Leader (GNEII), Khalifa University of Science, Technology and Applied Research (KUSTAR), Abu Dhabi, UAE ('12 – Present).
- Technical advisor on Anti-terrorism/Force Protection (AT/FP) to the Counter Terrorism Strategy Executive Office (CTSEO), Abu Dhabi, UAE, ('09 – Present).
- Member of Blast Protection of Buildings Standard Committee, ASCE.SEI 59-11 ('01 – Present).
- Technical advisor to the Urban Planning Council (UPC) on the development of Safety and Security Planning Manual for the Abu Dhabi Emirate, UAE, ('11 – '14).
- Founder and Executive Manager of the research collaboration program between KUSTAR and Lockheed Martin, USA ('11 – '14).
- Editorial board member of the International Journal of Safety and Security Engineering, WIT Press, UK, ('09 – '18).
- Lead Subject Matter Expert and Senior Principal, Good Harbor Consulting, LLC, ('09 – '10).
- Director of Research, Department of Civil and Environmental Engineering, United States Air Force Academy, USAFA ('09).
- Associate Professor of Civil Engineering, United State Air Force Academy, USAFA ('06 - '09).
- Acting Dean of School of Engineering, American University in Dubai, AUD ('04 -'06).
- Founding Chair and Associate Professor of Civil Engineering, American University in Dubai ('03 - '06).
- Research Associate Professor, Protective Technology Center (PTC), Penn State ('02 - '03).
- Co-Founder and Research Assistant Professor of PTC, Protective Technology Center, Penn State ('00 - '02).
- Research Affiliate, Applied Research Lab (ARL), Penn State ('00 - '03).
- Research and Development Specialist/Design Engineer, Overly Manufacturing Co., Greensburg, PA, ('96 - '00).

EDUCATION

- **Ph.D., 2002**, Civil Engineering (Blast and Impact Engineering), The Pennsylvania State University (Penn State), University Park, Pennsylvania. GPA (3.9/4.0)
Dissertation Title: *"Behavior of Structural Concrete Slabs Under Localized Impact"*.
Dissertation Advisor: Professor Theodor Krauthammer
- **Master of Science, 1996**, Civil Engineering (Structural Dynamics/Materials), The Pennsylvania State University (Penn State), University Park, Pennsylvania. GPA (3.8/4.0)

Thesis Title: "*Numerical Simulations of Reinforced Concrete Slabs Subjected to Impact Loading*".

Thesis Advisor: Professor Theodor Krauthammer

- **Bachelor of Science, 1994**, Civil Engineering (Structural/Materials), The Pennsylvania State University (Penn State), University Park, Pennsylvania. Undergraduate Research Advisor: Professor Theodor Krauthammer

PROFESSIONAL EXPERIENCE

1. Distinguished R&D Staff, Nuclear and Radiological Risk Management Sciences, Nuclear Security Sciences Directorate (NSSD), Oak Ridge National Laboratory, TN (Aug '23 – Present)

Providing scientific, technological, engineering, and NPP operational experience to sponsors and stakeholders in:

- Physical security engineering by design for nuclear facilities
- Engineering, science, technology, and innovation in nuclear
- Nuclear security education and operations training
- Nuclear energy security
- Nuclear newcomers' strategies
- Nuclear Power Plants Initiative
- Security By Design (SeBD) for research reactors, advanced reactors, SMRs
- Site security management and leadership
- Security organization professional development
- Safety and security interface
- Safety and security cultures enhancement
- Insider Threat Mitigation program enhancement
- Human performance in nuclear
- Capacity building and technical competency in nuclear security
- Performance evaluation and testing of physical security systems
- Women in nuclear security initiative
- Global engagement initiative
- Assisting DTRA with BBX/TTX scenarios and Scribe3D modeling

2. Founding Manager, Security Education and Training Department, Security and Safeguards Directorate (SNS), ENEC, Abu Dhabi, UAE, (Jan '14 – June '23)

- Led the security training and qualification programs for security operations, physical security, personnel security, cyber and information security, fuel transportation security, emergency preparedness for security personnel, radiation protection for security personnel, and central alarm stations.
- Managed and implemented the nuclear security professional development programs and the nuclear security culture enhancement programs as required by FANR Regulations, IAEA, and International best practices.
- Ensured the security support functions can stay focused on critical operational activities and project.
- Ensured a central point for reporting alignment, security training, performance metrics development and security-controlled document development/revision

support.

- Ensured critical process integration and alignment with regulatory requirements and critical external stakeholder dependencies.
- Promoted a high level of nuclear security training and education as a cornerstone in the development of a sustainable national nuclear energy security program.
- Facilitated cooperation and managed activities (including technical and scientific) to optimize the use of available resources, and to leverage those resources to meet ENEC specific needs.
- Developed a process for the effective and efficient implementation of the education and training support programs and ensured the continuous improvement of its implementation.
- Established and further developed the security education and training department technical and professional capabilities.
- Improved security practices, competencies, culture, and security awareness.
- Planned and coordinated the delivery of security short courses, seminars, workshops, and presentations both within ENEC and externally.
- Provided technical education and security training to employees working at Barakah Nuclear Power Plant.
- Developed security policies, strategies, procedures, process descriptions, and manuals in accordance with IAEA and FANR requirements.
- Conducted security training, On-Job-Training (OJT) and field observations to security protective forces.
- Managed and supervised the direction of the security education and training department and assume full responsibility for the proper execution of those activities within a set budget.
- Networked within ENEC for the purpose of raising awareness of the security education and training program and promoting its uptake.
- Evaluated the Barakah Nuclear Power Plant security culture, developed enhancement plan and security awareness within ENEC.
- Provided stand up technical and non-technical instructions for general security personnel.
- Developed and implemented courses requirements for credits, certifications, and professional development recognition.
- Contributed to strategic and business planning for the security education and training team.
- Oversaw and ensured ENEC employees are adhering to FANR and IAEA policies, procedures, and requirements.
- Provided input for development and maintenance of the corporate general security education and training schedule in order to ensure that training programs are continuously updated and carefully planned.
- Developed and maintain Security and Safeguards Directorate general education and training materials.
- Developed general education and training plans as required to support education and training needs.
- Developed a process for the effective and efficient implementation of the fuel transportation security, Cyber and Information security courses and training programs and ensured the continues improvement of its implementation.
- Liaised and where appropriate, worked with the directors responsible for program support, consultancy services and international universities and centers to ensure

proper coordination and consistency of practice.

- Liaised with security agencies and others and to keep up to date with developments in security practice and thinking, education and training needs, and methodologies, to ensure that the needs of ENEC employees understood and met that they are adequately prepared, educated, trained and supported in their role.
- Conducted needs analysis to formulate recommendations for training and non-training solutions for identified weaknesses.
- Collected and analyzed attendant's feedback (management team members, employees, and students) regarding security education and training to identify improvement opportunities.
- Facilitated communication both internally and externally to build and nurture mutually beneficial working relationships.
- Developed Security forums and conferences related to Security and Safeguards Directorate.
- Followed all relevant departmental Health, safety and Environmental (HSE) policies, processes, standard operating procedures, and instructions to ensure HSE compliance in all aspects of work in accordance with sound management practices.
- Development of nuclear security materials, courses, lesson plans, presentations, on-the-job testing, and performance evaluation for BNPP, including:
 - Nuclear Security Fundamentals
 - Nuclear Security Culture
 - Behavior Observation Program
 - Drugs and Alcohol Screening
 - Physical Security Systems Maintenance
 - Physical Security Systems Testing
 - Physical Security Systems Calibration
 - Physical Security Systems Commissioning
 - Physical Security Systems Design
 - Physical Security Systems Performance and Evaluation
 - Transportation Security
 - Information Handling and Classification
 - Classified Information Protection Program
 - Cyber Security Fundamentals
 - Cyber Security Operation Center
 - Cyber Security Incident Response
 - General Guard Force Members
 - General Security Instructions
 - Security Locks and Keys
 - Camera and Image Devices
 - Security Vital Area Patrols
 - Owner Controlled Area Patrols
 - Mobile Security Patrols
 - Primary Access Control Point Patrols
 - Primary Access Control Point Visitor Access
 - Personnel and Materials Searches
 - Vehicle Searches
 - Portable Trace Detector
 - HCVG, Vehicle X-ray
 - Sallyport Processes
 - Command and Communications Center
 - Limited Access Area

- Safety and Security Interface
- Event Reporting
- Event Response
- Alarm Station Overview
- Alarm Station Communications
- Alarm Station Functions
- Compensatory Measures
- Alarm Station Supervisor Functions
- Modes of Power
- Emergency Preparedness Technical Support Center
- Emergency Preparedness Operational Support Center
- Emergency Operational Facility
- Security Actions and Security Related Events
- Assembly, Accountability and Evacuation

3. Founding Manager, Physical Security Systems Development and Engineering, Security and Safeguards Directorate (SNS), ENEC, Abu Dhabi, UAE, (Nov '18 – March '20)

- Developed and implemented all security support activities conducted at Barakah Nuclear Power Plant (BNPP) site, to include the management and oversight of the design, development, construction, commissioning, maintenance, and implementation of the site Physical Security Systems (PPS).
- Provided ongoing operational support to various departments within site security including but not limited to security operations, alarm stations, personnel security, cyber and information security.
- Designed and established the physical security facilities and systems that supported the deployment and effectiveness of the guard force at BNPP.
- Developed the physical protection plans for construction and operation to establish the physical security systems to protect vital areas target sets.
- Led the physical protection systems processes including engineering and design requirements, communication systems, physical security operations – Testing, Maintenance and Calibration program, and the training and qualification of personnel performance of PPS components.
- Established and further developed the physical security staff competency framework.
- Developed and implemented the physical security training programs for ENEC personnel, contractors, suppliers, and vendors.
- Designed, developed, and delivered technical training to the physical security technical staff and engineers.
- Facilitated cooperation and assistance activities (including technical and scientific) with stakeholders, contractors, and vendors.
- Reviewed and approved specific physical security design requirements.
- Assisted in the design and implementation of the physical security protection systems at Barakah Nuclear Power Plant.
- ENEC subject matter expert for the design, development, construction, and implementation of the physical security systems for BNPP.
- Assisted in the development and implementation of the operability and performance testing activities.
- Assisted in the implementation of the Site Acceptance Tests (SAT) of the physical security systems onsite.

- Assisted in the implementation of the Factory Acceptance Tests (FAT) of the physical security systems onsite.

4. Founding Chair, Department of Civil Engineering, Khalifa University, Abu Dhabi Campus, UAE ('11 – '14):

- Established and developed the undergraduate program in Civil Infrastructure Engineering (CIVE).
- Completed the initial accreditation of the CIVE program from the Ministry of Higher Education and Scientific Research (MoHESR).
- Recruited Emirati undergraduate engineering students to the Civil Engineering program.
- Created and maintaining a strong Engineering services network outside the College to facilitate education, training, and research.
- Established and supervised the implementation of strategic directions, goals, objectives, and policies, in relation to the education and research within the civil engineering department.
- Recommended and supervised the development and implementation of the annual budget for the civil engineering department and performed periodic productivity and effectiveness analyses.
- Taught undergraduate engineering courses.
- Recruited and hired civil engineering faculty members.
- Designed, established, and procured the civil engineering Materials, Geotechnical, Geomatics, and Fluid Mechanics labs.
- Developed labs' specifications, equipment, safety, and operation lists.
- Developed a new learning outcomes assessment plan for the civil engineering department.
- Provided consultation, coaching, and academic advising to engineering students.
- Developed the budget for the department including personnel, operation, capitals, and revenue.

5. Co-Founder, Institute for International and Civil Security, Director of Joint Programs and Associate/Full Professor in Practice, Khalifa University, Abu Dhabi Campus ('11 – '14):

- Subject matter expert and specialty security advisor to various Abu Dhabi government entities.
- Established and Co-founded the Institute for International and Civil Security; the first of its kind in the MENA region.
- Represented the University in the engineering and security field at various forums outside the university.
- Served as an Invited keynote speaker for major security conferences in the region.
- Recommended and participated in the development of university policies and procedures.
- Secured internship with International and national companies for junior students in engineering.
- Served as an academic and theses advisor to graduate students and professionals.
- Taught graduate courses international and civil security to graduate students.
- Secured external government and private industry funding.

- Established and managing the R&D activities between Lockheed Martin and Khalifa University.
- Assisted in the accreditation preparation visit of the MoHESR for the international and civil security program.
- Coordinator of Joint programs between the institute for International and Civil security and the college of engineering.
- Personally recruited Emirati professionals to join the International and Civil Security graduate program.
- Developed new courses for the Institute for International and Civil Security.
- Developed new technical related security courses for the program.
- Secured external funding to establish the simulation and visualization center.
- Established relationships between private companies, government entities and the university.

6. Lead Subject Matter Expert (SME) on Blast Effects and Mitigation/Senior Principal, Good Harbor Consulting, LLC. Abu Dhabi, UAE ('09 – '10):

- Recruited and hired by Mr. Richard A. Clarke to establish the International and Civil Security Masters' program at Khalifa University.
- Conducted risk assessment and security by design for the Louvre Abu Dhabi, Guggenheim Abu Dhabi and Zayed National Museums.
- Conducted risk assessment and security design for Capital Gate building Abu Dhabi.
- Completed security design review for Nation Towers Abu Dhabi.
- Conducted Threats, Vulnerabilities, Risk and Assessment (TVRA) of Emirate Palace Hotel and Abu Dhabi National exhibition Centre (ADNEC).
- Conducted Improvised Explosive Device Assessment (IEDA) for the Marina District Commercial Tower, Saadiyat Island, Abu Dhabi.
- Provided security-engineering consultations to top international engineering companies operating in Abu Dhabi (i.e., Foster+Parteners, WSP, Control Risk, International Capital Trading, ARUP, Buro Happold FEDRA, AECOM, Pascall & Watson, Parsons).
- Provided security consultations to Tourism Development & Investment Company (TDIC) Abu Dhabi for its master plans.
- Conducted physical security assessments of 20 Ports and 6 international Airports in UAE.
- Served as Good Harbor's lead subject matter expert on blast effects and structural engineering.
- Provided strategic security master planning for major islands development in Abu Dhabi.
- Provided technical and engineering review of iconic and key buildings in Abu Dhabi against terrorist attacks.
- Provided safety and security consultations to Abu Dhabi Urban Planning Console.
- Assisted Good Harbor clients in the development of safety and security manuals, guidelines and codes.
- Provided technical advice to private clients on antiterrorism design and assessment.
- Provided engineering advice on various aspects of security master planning projects.
- Provided explosive safety, physical security, and blast damage assessment services to private clients.

- Provided technical engineering oversight on airport, seaport and other major infrastructure security projects.
- Provided design recommendations on projects for enhancing structural performance, physical safety and access systems for iconic structures and critical infrastructures.
- Provided assessment, analysis, and design of Modern Protective Structures (MPS).
- Provided technical review services to clients for analysis and design of structures under impulsive loading.
- Served as security technical advisor on safety and security manual development.
- Developed internal blast analysis and mitigation capabilities within Good Harbor.
- Managed the development of Good Harbor's technical design capabilities.
- Advised on a broad range of technical issues dealing with mitigating the severe loading effects associated with abnormal incidents (e.g., blast, shock, and impact).
- Advised on the development of the new Master of Art degree curriculum in International and civil security for Khalifa University of Science, Technology, and Research (KUSTAR).
- Mentored and advised Emirati professional interns.

7. Associate Professor and Director of Research, Department of Civil & Environmental Engineering, United States Air Force Academy, USAFA ('06 - '09):

Developed and delivered senior level classes including Reinforced Concrete Design, Steel Design, Structural Analysis, Blast Effects and Protective Structures and Field Engineering Readiness Laboratory (FERL). Conducted blast effects related research at department, academy, Air Force and DoD levels.

- Directed and supervised the research activities in the department.
- Established Cooperative Research and Development Agreement (CRADA) with Ultimate Defense Inc. to investigate armored glass subjected to blast and ballistic attacks, '09.
- Established Cooperative Research and Development Agreement (CRADA) with Sandia Solar Technology LLC. to investigate the efficacy of blast armor media for Improvised Explosive Devices (IED) mediation, '09.
- Established Cooperative Research with Tyndall Air Force Base for evaluation of blast resistant rigid walled expeditionary structures, '08.
- Nominated by cadets as the finalist for the Air Force Academy Heiser Senior Professor Award, '09.
- Received outstanding teaching and leadership performance in all courses delivered at USAFA.
- Developed new classes in the area of explosive effects and force protection design which were offered for the first time at USAFA.
- Escorted USAF Academy cadets on a culture immersion trips to UAE.
- Escorted visiting officers from the UAE, Jordan, and Oman delegations during the international week at USAFA, April 15-22, '07.
- Received Instructor of the Quarter-Spring '07 award.
- Received Outstanding First Year Instructor '06 - '07 award.
- Assisted in the preparation for the ABET Accreditation visit to USAFA, '08.
- Hosted 26 international officers with the Superintendent of USAFA, '07.
- Academic advisor and consular to cadets on various issues.

- Founder of USAFA Student Ambassadors to International Chapters Committee and ASCE Student Chapters.

8. Acting Dean and Co-founder of the School of Engineering, American University in Dubai (AUD), Dubai, UAE ('04 - '06):

- Developed and established four (4) undergraduate programs in Civil, Computer, Electrical, and Mechanical Engineering.
- All programs were accredited in 2005 by the Commission for Academic Accreditation in the UAE and after that by ABET.
- Reported directly to the Provost/Chief Academic Officer of the University on Planning/budgeting, curriculum development, recruitment/ evaluation/ reward/ dismissal of faculty, supervision of student advisement, comprehensive student assessment, and the consultative and collaborative relationship with the school's Advisory Council and other outreach activities.
- Provided leadership and long term in planning, curriculum assessment and development, student outreach and recruiting, fiscal management, supervision of laboratory maintenance, coordination of school special events.
- Served on the AUD's Academic Council, which deliberates University-wide academic policy and procedures.
- Created and maintained a strong Engineering services network outside the College to facilitate education, training, and research.
- Established and supervised the implementation of strategic directions, goals, objectives, and policies, in relation to the education and research within the College and across the departments.
- Represented the University in the Engineering field at various forums outside the university.
- Recommended and supervised the development and implementation of the annual budget for the College and performed periodic productivity and effectiveness analyses.
- Developed and maintained a network of adjunct professors to support the College in research and educational activities.
- Recommended and participated in the development of university policies and procedures.
- Coordinated agreements with Ministries, relevant Authorities, and agencies within the United Arab Emirates and abroad.
- Provided leadership input in human resources, management concepts, practices, policies, and procedures to the higher education entities in UAE.
- Fostered and created research programs relevant to the region.
- Demonstrated strong interpersonal and communication skills and the ability to work effectively with a wide range of constituencies in a diverse community.
- Established communication with engineering networks and establishments, and other related institutions for activating education and research.
- Established strong relationships with international engineering bodies as well as international accreditation bodies.
- Co-organized an IEEE conference for the first time in the MENA region.

9. Founding Chair and Associate Professor of Civil Engineering, School of Engineering, American University in Dubai (AUD), UAE, ('03 - '06):

- Established and developed the new civil engineering curriculum for the first time at AUD.
- Established, equipped, and procured all the civil engineering laboratories equipment.
- Designed, developed, and delivered various engineering courses.
- Designed, developed, and delivered all civil engineering courses.
- Revised and advised the engineering curriculum activities.
- Served as an academic advisor to engineering students.
- Served as a faculty advisor to the AUD engineering professional societies.
- Developed new elective courses for the school of engineering.
- Introduced active learning technique, such as group problem solving and integrated lectures.
- Provided mentorship, coaching and counseling to students on wide range of issues.

10. Co-Founder and Research Assistant/Associate Professor, Protective Technology Center (PTC), Penn State University, University Park, PA ('00 - '03):

Managed, supervised, and conducted science and technology R&D activities at PTC:

- Supervised graduate students' thesis work.
- Designed and built enclosure under blast, shock, and impact.
- Performed computational simulations, modeling, and computer code validation.
- Investigated environmental effects on structural elements performance under blast, shock, and impact.
- Investigated explosive load definition for external and internal explosions.
- Studied material behavior under blast, shock, and impact.
- Evaluated non-structural elements under blast, shock, and impact.
- Performed pre-and post- incident damage and condition assessments.
- Evaluated structural behavior, design, performance, and safety.
- Delivered technology transfer and training.
- Assisted undergraduate honors and graduate students on their theses.
- Supervised the work and projects of undergraduate students.
- Advised undergraduates in related academic courses.

11. Research & Development Specialist / Design Engineer, Overly Door Company, Greensburg, PA ('96 – '00):

Specific private industry experience includes the following:

- Explosive safety assessment of chemical plant development and analysis of a blast resistant air cargo container, including a corrugated core door.
- Development of an antiterrorist gate for nuclear power plants.
- Technical support for blast door development.
- Analysis, design, and testing of concrete-filled radiation shielding door assembly.
- Analysis, design, and testing of electro-hydraulic operated blast resistant equipment and personnel doors for a contained firing facility.
- Analysis and design of blast resistant doors for nuclear weapons assembly and disassembly facility.
- Competitive markets and products analyses.
- Design and analysis of bullet resistant products, blast, watertight, and gastight doors.

- Development of product testing apparatus, specifications, and testing procedures.
- Advanced nonlinear finite element analysis and design of blast doors.
- Design of security entrances for military facilities and airport security gates to resist explosion and fragmentation.
- Development of computer programs to process the design calculations in a more efficient and productive manner.
- Development of weld procedures and quality control plans for various projects.
- Development of design procedure to be certified with ISO-9000.

12. Research Assistant, Applied Research Laboratory (ARL), Penn State University, University Park, PA ('93 – '96):

- Assisted in analysis, design, testing and evaluation of structures and protective facilities under severe short duration dynamic and seismic loads.
- Assisted in the development of precision impact testing in support of computer code validation and verification.
- Performed advanced nonlinear finite element analysis of concrete and steel structures.
- Performed nonlinear finite element modeling and analysis of impact tests.
- Substituted professors in teaching academic courses.
- Consulted in the support of antiterrorist gate development.
- Conducted explosive safety assessment of chemical plant and physical security assessment.
- Assisted in the development of blast resistant air cargo containers.
- Provided technical support for blast door development.

13. Research Assistant, Materials Research Laboratory (MRL), Penn State University, University Park, PA ('90 – '93):

- Assisted in research conducted on waste disposal in concrete and cement.
- Conducted experiments on properties and strength of concrete and cement.
- Trained graduate students and visiting scientists on various types of experiments and equipment.
- Prepared and presented final research reports.
- Developed methods used in test procedure.

TEACHING EXPERIENCE

Curriculum and lab design and construction experience, creative teaching techniques in designing and delivering civil engineering and civil security courses, including:

- First Year Experience
- Introduction to Engineering
- Introduction to Professional Engineering
- Engineering Ethics
- Engineering Statics
- Engineering Dynamics
- Mechanics of Materials
- Elementary Structural Analysis
- Behavior and Analysis of Structures

- Civil Engineering Materials
- Geotechnical Engineering
- Behavior and Design of Reinforced Concrete Members
- Behavior and Design of Steel Members
- Structural Design (Reinforced Concrete, Steel, Timber and Masonry)
- Engineering Graphic and Visualization (AutoCAD)
- Matrix Method in Structural Analysis
- Finite Element Analysis
- Introduction to Modern Protective Structures
- Explosive Effects and Protective Structures
- Critical Infrastructure Protection Design
- Technology and Civil Security
- Technology and International Security
- Engineering Design and Communication
- Engineering Design and Project
- Field Engineering Readiness Laboratory (FERL)

Physical Security Engineering Design Short Courses

| <u>Name</u> | <u>Date</u> | <u>No. of Participant</u> | <u>Location</u> |
|---|--------------|---------------------------|-----------------|
| Modern Protective Structures* | Summer 95 | 22 | Penn State |
| Modern Protective Structures* | Summer 96 | 25 | Penn State |
| Modern Protective Structures* | Summer 97 | 27 | Penn State |
| Modern Protective Structures* | Summer 98 | 29 | Penn State |
| Modern Protective Structures* | Summer 99 | 37 | Penn State |
| Modern Protective Structures* | Summer 00 | 23 | Penn State |
| Modern Protective Structures* | Summer 01 | 31 | Penn State |
| Modern Protective Structures* | Summer 02 | 30 | Penn State |
| Modern Protective Structures* | Summer 03 | 35 | Penn State |
| Explosion Effects on Structures | November '09 | 9 | GHC, AD |
| Blast Effects on Buildings Blast Resistant & Resilient | February '10 | 5 | UPC, AD |
| Design of Buildings inside Oil and Gas Fields | June '12 | 20 | AD, UAE |

**Short courses co-instructed by Prof. Ted Krauthammer*

ADMINISTRATIVE / SERVICE

Academic & Professional Committees

International Level

- Member of the International Scientific Advisory Committee for the Fifth International Conference on Safety and Security Engineering, SAFE 2013, Rome, Italy, Sept. 2013.

- Member of the organizing committee and the Master of Ceremony of the launch of the Arabic Edition of the Sphere Handbook 2011 “Humanitarian Charter and Minimum Standards in Humanitarian Response” Handbook, 21st June, 2011, Khalifa University – Abu Dhabi, UAE.
- Member of the International Editorial Board of the International Journal of Safety and Security Engineering (’09 – ’15).
- Member of the Technical Advisory Committee (TAC), Safety and Security Planning Manual, Abu Dhabi, UAE (’11 – ’15).
- Member of the International Advisory Board of the 10th International Conference on Multi-Purpose High Rise Towers and Tall Buildings, Abu Dhabi, UAE, March 5 - 6, 2012.
- Member of the SEI/ASCE Blast Protection of Buildings Standards Committee (’01 – Present).
- Member of the ACI International Faculty Network (’03 – Present).
- Member of the Advisory Committee of the First International Conference on Design and Analysis of Protective Structures Against Impact/Impulsive/Shock Loads, Tokyo, Japan, Dec. 15-18, 2003.
- Member of the Advisory Committee of the 4th International Conference on Concrete Under Severe Conditions: Environment and Loading (CONSEC’04), Seoul, Korea, June 27-30, 2004.
- Member of the Local Organizing Committee of the 2nd IFIP International Conference on Wireless and Optical Communications Networks, IEEE-WOCN2005, Dubai, UAE, March 6-8, 2005.
- Member of the International Advisory Board of the 7th IFHS International Conference on Multi-Purpose High-Rise Towers and Tall Buildings, Dubai, UAE, Dec. 10-11, 2005.
- Member of the International Advisory Committee of the 2nd International Conference on Intellectual Capital, Knowledge Management and Organizational Learning (ICICKM), Dubai, UAE, Nov. 21-22, 2005.
- Chair of the 3rd session of the First National Seminar on Construction Project Management, Dubai, UAE, April 27th, 2005.
- Member of the International Advisory Committee of the 3rd International Conference on Intellectual Capital, Knowledge Management and Organizational Learning (ICICKM), Pontificia Universidad Católica de Chile, Chile, Oct. 19-20, 2006.
- Member of the Advisory Committee of the 5th International Conference on Concrete Under Severe Conditions of Environment and Loading (CONSEC’07), Tours, France, June 4-6, 2007.

University Level

- Member of the Engineering Council Committee, School of Engineering ’13 - ’14.
- Member of the faculty committee for the President’s Academic Advisory Council (PAAC), ’12 – ’14.
- Department Chairs Search Committee, ’11 - ’14.
- Research and Innovation Committee, ’11 - ’14.
- Facility and Infrastructure Committee, ’11 - ’14.
- Member of USAFA Faculty Forum, ’08 - ’09
- Member of USAFA Science, Technology, Engineering and Math (STEM) Committee,

'08 - '09

- Chief Advisor of Tau Beta Pi (Engineering Honor Society) at USAFA, '08 - '09
- Member of University Academic Units Chairs' Council, '04 - '06
- Member of University Faculty Selection Committee, '03 - '06
- Member of University Award Committee, '04 - '06
- Member of University Curriculum and Education System Committee, '04 - '06
- Member of University Research Board, '03 - '06
- Member of University Accreditation Committee, '03 - '06
- Member of University Institutional Effectiveness Committee, '04 - '06
- Member of University Committee for Student's Academic Affairs, '03 - '06

College Level

- Civil Infrastructure and Environmental Engineering (CIVE) Faculty Search Committee, '11 - '14.
- International and Civil Security Faculty Search Committee, '11 - '14.
- CIVE Program Assessment and Accreditation Committee, '11 - '14.
- Chair of College Board, '03 - '06
- Chair of Assessment Committee, '03 - '06
- Chair of College Advisory Committee, '03 - '06
- Chair of College Accreditation Committee, '03 - '06
- Chair of Lab Equipment Acquisition Committee, '03 - '06
- Leading Engineering Program Assessment/Accreditation Activities, '03 - '06
- Member of External Affairs & Marketing Committee, '03 - '06
- Graduating Recruitment Representative, '99 - '02
- Engineering Open House Representative, '97 - '99
- Student Advisory Consular Committee, '96 - '98

CURRICULUM DEVELOPMENT AND OUTREACH PROJECTS

- Organized "Creating the Language of Architecture: A Structural Design Philosophy" lecture to Civil Engineering students, staff, and faculty members of KUSTAR, February 5th, 2013.
- Organized Technical Exchange Summit with Lockheed Martin, November 11th, 2012, Khalifa University, Abu Dhabi, UAE.
- Attended the conference "Defending Security Threats", the Emirates Center for Strategic Studies and Research (ECSSR), November 8th, 2012, Abu Dhabi, UAE.
- Participated in the Gulf Nuclear Energy Infrastructure Institute (GNEII) Symposium, October 9-10, 2012, Khalifa University, Abu Dhabi, UAE.
- Assisted in the organization of the Biothreat Awareness for Law Enforcement Workshop, October 7-10, 2012, Khalifa University, Abu Dhabi, UAE.
- Organized Innovation and Situational Awareness Summit with Lockheed Martin, November 1st, 2011, Khalifa University, Abu Dhabi, UAE.
- Assisted in the development of the Master of Arts curriculum in International and Civil Security at Khalifa University, '11.
- Developed the undergraduate Civil Infrastructure and Environmental Engineering curriculum at Khalifa University, '11.
- Developed the undergraduate Civil Engineering curriculum at the American University

in Dubai, '03.

- Revised the Engineering Curriculum at the American University in Dubai- Leading role in a comprehensive revision of the engineering curriculum in all three engineering programs to satisfy ABET and the UAE Commission for Academic Accreditation, '03 - '06.
- Implemented design in the engineering curriculum- a new curriculum was developed to guide undergraduate students through the engineering design process with hands-on practical projects that are open-ended, and industry sponsored. This project emphasized design skills including teamwork, prototype building/testing, and communication skills, '03 - '06.

TRAINING/COMPUTER SKILLS

- Attended the Teaching and Learning Symposium held by Khalifa University, March 3, 2012.
- Certified Instructor of Martial Arts, Master Level (Fourth-Degree Black Belt).
- Strength and Conditioning trainer for Penn State Lacrosse Team.
- Taught Unarmed Combat I class for officers and cadets.
- Taught Unarmed Combat II class for officers and cadets.
- Project WISE (Workplace Integration Skills for Engineers) training in leadership, conflict management, and gender/cultural diversity.
- Advanced finite element analysis and modeling (LS-DYNA3D, DYNA3D, ABAQUS/Explicit, PATRAN, ANSYS, COSMOS/M, I-DEAS, STADDIII, SAP2000).
- AutoCAD, Pro/E, Made2Manage, Microsoft Office.
- Computer Languages: FORTRAN, Quick Basic.
- Operating Systems: DOS, Windows XP, UNIX, NT.
- Mac and PC user.

PROFESSIONAL MEMBERSHIP

- World Institute for Nuclear Security (WINS), Member.
- American Society of Military Engineers, Member.
- American Engineering Honor Society (Tau Beta Pi), Lifetime Member.
- American Society of Civil Engineers, National Member.
- American Concrete Institute, Member.
- American Standard of Testing Materials, ASTM, Member.
- National Committee on Concrete Performance and Durability, UAE, Founding Member.

AWARDS

- Barakah Nuclear Power Plant Excellence Award, CEO Managerial Medal, 2019.
- Nominated for the faculty award for excellence service to Khalifa University, 2013.
- Nominated for the faculty award for excellence in teaching, Khalifa University, 2012.
- Top 20 finalists for the Air Force Academy Heiser Senior Professor Award, 2009.
- Selected to attend Excellence in Civil Engineering Education (ExCEEEd) teaching workshop, University of Arkansas, July 13 – 18, 2008, Sponsored by the American Society of Civil Engineers (ASCE) and West Point Academy.
- Instructor of the quarter award– USAFA, Fall 2007
- Instructor of the quarter award– USAFA, Spring 2007.
- Outstanding first year instructor, USAFA, 2006 - 2007.

- Nominated by the civil engineering department for the outstanding academy educator award, USAFA, 2009.
- Endorsement from the American Muslim Armed Forces and Veterans Affairs Council to USAFA for conducting and leading Daily/Weekly worship services at USAFA, 2007.
- Faculty excellence in teaching award, AUD, 2005.
- Faculty excellence in research award, AUD, 2006.
- Awarded first place in model bridge design and construction, Penn State 1992.

PUBLICATIONS

Nuclear Security for Scientists, Technicians and Engineers, Nuclear Security Management Certification Program, Edition 3.0, World Institute for Nuclear Security, Vienna, Austria, 2021. ISBN 978-3-903191-98-3

Comparative Analysis of Technological and Intelligent Terrorism Impacts on Complex Technical Systems, NATO science for Peace and Security series, Edited by Nikolay A. Makhutov and Gregory B. Baecher. 2012, IOS Press. ISBN 978-1-61499-130-4.

ASCE/SEI (59-11), Blast Protection of Buildings Standards, Sept. 15, 2011.

Critical Infrastructures Security Manual (CISM), Higher Committee for Critical Infrastructures Protection Committee, Abu Dhabi, United Arab Emirates, January 2014.

Counter Terrorism and Crisis Management Strategies (CTCMS), Higher Committee for Counter Terrorism and Management, Abu Dhabi, United Arab Emirates, March 2013.

The National Response Plan (NRP), National Crisis and Emergency Management Authority, NCEMA, Abu Dhabi, United Arab Emirates, June 2012

Safety and Security Planning Manuals (SSMP), Urban Planning Council, Abu Dhabi, United Arab Emirates, October 2012.

Security Strategy Framework for Abu Dhabi Accountability Authority (ADAA) Headquarters, Technical Manual, ADAA, Abu Dhabi, United Arab Emirates, May 2012.

Structural Analysis and Design Guidelines for Outdoor Advertisement Signs, Technical Manual, Dubai Municipality, Dubai, United Arab Emirates, June 2005.

Refereed Journals & Conference Proceedings

Zineddin, M., Sherwood, F., L., “*Security Risk Management: Methodology and Process*,” *Canadian Journal of Technology and Scientific Management*, Canada, 2013,

Zineddin, M., Sherwood, F., L., “*Security Risk Management: Analysis and Evaluation*,” *Canadian Journal of Technology and Scientific Management*, Canada, 2013,

Zineddin, M., Byon, Y., J., “*Sensors and Instrumentation Selection for Impact and Blast Tests*,” *International Journal of Computational Methods and experimental Measurements*, WIT Press, UK, 2013,

Zineddin, M., Sherwood, F., L., “*Anti-Terrorism Protection and Protective Measures for Hotels,*” The Fifth International Conference on Safety and Security Engineering, SAFE 2013, Rome, Italy, Sept. 17-20, 2013.

Zineddin, M., Sherwood, F., L., “*Critical Infrastructure Protection Course for Engineers,*” *Journal of Homeland Security Education,* Marian University of Wisconsin, 2012.

Zineddin, M., “Numerical Simulation of Reinforced Concrete Slabs Subjected to Impact Loading,” *International journal of Impact Engineering,* Elsevier Science Ltd., Dec. 2008.

Zineddin, M., Krauthammer, T., “Dynamic Response and Behavior of Reinforced Concrete Slabs Under Impact Loading,” *International journal of Impact Engineering,* Elsevier Science Ltd., Dec.2006.

Ranked Number 11 from Jan – Mar, 2007 in the Sciencedirect Top 25 Hottest Articles in engineering

Ranked Number 3 from April – June, 2007 in the Sciencedirect Top 25 Hottest Articles in engineering

Ranked Number 6 from July – Sept, 2007 in the Sciencedirect Top 25 Hottest Articles in engineering

Ranked Number 24 from Oct – Dec, 2007 in the Sciencedirect Top 25 Hottest Articles in engineering

Byon, Young-Ji, Kong Peng-Young, Jeong, Young-Seon, **Zineddin, M.,** “Transit Passengers’ Schedule Awareness and Vehicle Load Level Simulation in Abu Dhabi,” ITS America 2013, Nashville, Tennessee, April 22-24, 2013.

Byon, Young-Ji, Kong Peng-Young, Jeong, Young-Seon, **Zineddin, M.,** “Micro Simulation-based Analysis of Influences of drivers’ sudden brakes on traffic flow due to speed trap cameras,” ITS America 2013, Nashville, Tennessee, April 22-24, 2013.

Zineddin, M., “*Oil and Gas Infrastructure Protection,*” The First International Conference on Petroleum and Mineral Resources, Petroleum 2012, Koya, Kurdistan, Dec 4 - 6, 2012.

Byon, Young-Ji, **Zineddin, M.,** Jeong, Young-Seon, “*3-D GIS and Intelligent Transportation Systems,*” Geospatial Scientific Summit, American University in Dubai, Dubai, UAE, November 12-13, 2012.

Zineddin, M., “*Infrastructure Protection Design and Hardening,*” The seventh International Conference on Urban Regeneration and Sustainability, Sustainable City 2012, Ancona, Italy, May 7 - 9, 2012.

Zineddin, M., “*Physical Security and Antiterrorism Design,*” Middle East Homeland Security Summit, Abu Dhabi, UAE, April 23-24th, 2012.

Zineddin, M., “*Antiterrorism and Physical Security,*” ASIS 3rd Middle East Security Conference and Exhibition, Dubai, UAE, February 19 - 21, 2012.

Zineddin, M., “*Blast Effects and Protective Technology Design,*” The Fourth International Conference on Safety and Security Engineering, SAFE 2011, Antwerp, Belgium, July 4 - 6, 2011.

Zineddin, M., “Antiterrorism Protection and Protective Engineering Design,” NATO-Russia Advanced Research Workshop on Comparative Analysis of Technological and Intelligent Terrorism Impacts on Complex Technical Systems, Moscow, Russia, April 5-7, 2011.

Zineddin, M., “*Explosive Identification and Recognition*,” The second F1 Training Seminars, Abu Dhabi, UAE, November 1 – 3, 2010.

Zineddin, M., “Explosion Effects, Antiterrorism Protection, Protective Design and Blast Harden Structures,” U.S. Department of State, Diplomatic Security, OSAC Doha 2010 Middle East and North Africa Regional Conference, Doha, Qatar, September 27-29, 2010.

Zineddin, M., “*Improvised Explosives Devices (IEDs)*,” The First F1 Training Seminars, Abu Dhabi, UAE, October 29 – 31, 2009.

Zineddin, M., “Blast Effects and Protective Structures, “An Interdisciplinary Course for Engineers,” The Third International Conference on Safety and Security Engineering, SAFE 2009, Rome, Italy, July 1-3, 2009.

Zineddin, M., “Sensors and Instrumentation selection for Blast and Impact Testing,” Tenth International Conference on Structures Under Shock and Impact, SUSI 2008, Algarve, Portugal, May 14-16, 2008.

Zineddin, M., “Simulation of Reinforced Concrete Slab Behavior under Impact Loading,” The Architectural Engineering Institute Conference, AEI’08, Denver, CO, September 25-27, 2008.

Derby, D., **Zineddin, M.**, “Defining Relationships between Vendors and Professional Services in Out-Sourced Civil Engineering Squadrons,” The Architectural Engineering Institute Conference, AEI’08, Denver, CO, September 25-27, 2008.

Zineddin, M., “Numerical Simulation of Reinforced Concrete Slabs Subjected to Impact Loading,” Fifth International Conference on Concrete Under Severe Conditions; Environmental and Loading, Tours, France, June 4-6, 2007.

Park Y. J., Krauthammer, T., **Zineddin, M.**, “Size and Rate Effects of Concrete Members Based on Linear Elastic Fracture Mechanics,” Fifth International Conference on Concrete Under Severe Conditions; Environmental and Loading, Tours, France, June 4-6, 2007.

Zineddin, M., “Normal and High Strength Concrete Under Impact Loading,” Second International Conference: Application of Traditional and High-Performance Materials in Harsh Environments, American University of Sharjah, Sharjah, UAE, March 20-22, 2006.

Zineddin M., “Bridges Protection Against Explosive Incidents,” Gulf Traffic 2005 Conference, Dubai, UAE, 12-14 December 2005.

Zineddin, M., “Risk and Vulnerability Assessments for High Rise buildings and Towers,” The 7th IFHS International Conference on Multi-purpose High-Rise Towers and Tall Buildings, Dubai, UAE, December 10-11, 2005.

Zineddin, M., “Risk Assessment and Management process of buildings and facilities,” The First National Seminar on Construction Project Management, Dubai, UAE, April 27, 2005.

Zineddin, M., (Distinguished Participant) “Behavior of Engineered Materials under Blast, CV – Dr./Prof. Zineddin

shock and Impact,” International Conference on Materials Research and Education: Future Trends and Opportunities, Texas A&M University at Qatar, Doha, State of Qatar, April 4-6, 2005.

Zineddin, M., Krauthammer, T., “Experimental Study of Reinforced Concrete Slabs Subjected to Impact Loading,” Fourth International Conference on Concrete Under Severe Conditions: Environment and Loading, Seoul, Korea, June 27-30, 2004.

Zineddin, M., “Numerical Simulation of Concrete Slabs Under Impact Loading,” First International Conference: Application of Traditional and High-Performance Materials in Harsh Environments, American University of Sharjah, Sharjah, UAE, January 20-22, 2004.

Zineddin, M., Elfahal, M., “Concrete Cylinders Under Sever Compressive Loads,” First International Conference: Application of Traditional and High-Performance Materials in Harsh Environments, American University of Sharjah, Sharjah, UAE, January 20-22, 2004.

Zineddin, M., Krauthammer, T., “Behavior of Concrete Slabs Under Impact Loading,” First International Conference on Design and Analysis of Protective Structures Against Impact/Impulsive/Shock Loads, Tokyo, Japan, December 15-18, 2003.

Zineddin, M., “Transportation Infrastructure Protection Against Explosive Incidents,” Gulf Traffic 2003 Conference, Dubai, UAE, December 8-11, 2003.

Zineddin, M., “Dynamic Response of Reinforced Concrete Slabs Subjected to Impact Loading,” The Ninth Arab Structural Engineering Conference, Abu-Dhabi, UAE, Nov. 29 to Dec. 1, 2003.

Zineddin, M., Krauthammer, T., “Reinforced Concrete Slabs Subjected to Localized Impact,” Proc. 74th Shock and Vibration Symposium, San Diego, CA, October 27-30, 2003.

Zineddin, M., Krauthammer, T., “Structural Concrete Slabs Under Impact Loading,” Proc. 11th International Symposium on Interaction of the Effects of Munitions with Structures, Mannheim, Germany, May 5-9, 2003.

Krauthammer, T., **Zineddin, M.**, Lim, J.H., and Oh, G.J., “Three-Dimensional Structural Steel Frame Connections Under Blast Loads,” Proc. 73rd Shock and Vibration Symposium, Shock and Vibration Information Analysis Center, Newport, RI, November 18-21, 2002.

Krauthammer, T., **Zineddin, M.**, Lim, J.H., and Oh, G.J., “Structural Steel Connections for Blast Loads,” Proc. 30th Explosive Safety Seminar, Department of Defense Explosive Safety Board, Atlanta, GA, August 13-15, 2002.

Krauthammer, T., **Zineddin, M.**, “Structural Concrete Slabs Under Localized Impact,” Proc. 9th International Symposium on Interaction of the Effects of Munitions with Structures, Berlin, Germany, May 3-7, 1999.

Krauthammer, T., O’Danial, J.L., **Zineddin, M.**, “Innovative Blast-resistant Corrugate Core Steel Systems,” Proc. 2nd Asia-Pacific Conference on Shock & Impact Loads on Structures, Melbourne, Australia, November 25-27, 1997.

Research Reports:

Zineddin, M., “Institute for Nuclear Security and Safeguards: A Business Proposal”,

Emirates Nuclear Energy Corporation (ENEC), Abu Dhabi, UAE, 2016.

Zineddin, M., “Emirates Palace (EP) Threat, Vulnerability, and Risk Assessment”, Abu Dhabi, UAE, January 2010.

Zineddin, M., “Ministry of Interior (MOI) Threat, Vulnerability, and Risk Assessment”, Abu Dhabi, UAE, July 2010.

Zineddin, M., “Abu Dhabi National Exhibition Center (ADNEC) Threat, Vulnerability, and Risk Assessment”, Abu Dhabi, UAE, September 2009.

Zineddin, M., “Review of Existing Structural Analysis and Design for Advertisement Signs,” Technical Report, Dubai Municipality, Dubai, April 2004.

Zineddin, M., Krauthammer, T., “Behavior of Structural Concrete Slabs under Localized Impact,” Technical Report, U.S. Army Corps of Engineers, Engineering Research and Development Center, November 2002.

Zineddin, M., Krauthammer, T., "Fuel-Air Explosion Assessment in Metal Shredding Processes and their Possible Mitigation," Technical Report, Mandak Metal Processors Facility, Selkirk, Manitoba, May 2001.

Lim, J., Krauthammer, T., **Zineddin, M.**, “Progressive Collapse Analysis of Eight Story Building,” Technical Report, US Army Corps of Engineers, Engineering Research and Development Center, December 2001.

Sabuwala, T., Krauthammer, T., **Zineddin, M.**, “Finite Element Analysis of Steel Beam to Column Connections Subjected to Blast Loads,” Technical Report, US Army Corps of Engineers, Engineering Research and Development Center, May 2002.

Park, J., Krauthammer, T., **Zineddin, M.**, “A Confined Concrete Model for Columns under Combined Axial Load and Bending,” Technical Report, US Army Corps of Engineers, Engineering Research and Development Center, August 2002.

Schoedel, R., Krauthammer, T., **Zineddin, M.**, “Shear Behavior in Structural Concrete Members under Short Duration Dynamic Loads,” Technical Report, US Army Corps of Engineers, Engineering Research and Development Center, December 2002.

Elfahel, M., Krauthammer, T., **Zineddin, M.**, “Size Effects in Normal and High Strength Concrete Cylinders Subjected to Static and Dynamic Axial Compressive Loads,” Technical Report, US Army Corps of Engineers, Engineering Research and Development Center, May 2003.

Joby, J., Krauthammer, T., **Zineddin, M.**, “Linear and Nonlinear Analysis of Orthotropic Corrugated-Core Sandwich Plates,” Technical Report, US Army Corps of Engineers, Engineering Research and Development Center, August 2003.

Starr, C., Krauthammer, T., **Zineddin, M.**, “Impact Testing of Autoclaved Aerated Concrete Panels under Impact Load,” Technical Report, US Army Corps of Engineers, Engineering Research and Development Center, August 2002.

Yim, H., Krauthammer, T., **Zineddin, M.**, “Modeling of Autoclaved Aerated Concrete Beams

under Localized Impact,” Technical Report, US Army Corps of Engineers, Engineering Research and Development Center, May 2003.

Meley, J., Krauthammer, T., **Zineddin, M.**, “Finite Element Code Validation using Precision Impact Test Data on Reinforced Concrete Beams,” Technical Report, US Army Corps of Engineers, Engineering Research and Development Center, December 2003.

Zineddin, M., “Numerical Simulations of Reinforced Concrete Slabs Subjected to Impact Loading,” Technical Report, Department of Civil Engineering, The Pennsylvania State University, August 1996.

Invited Conference/Workshop/Meeting Presentations:

Zineddin, M., “New Build Case Study, Barakah Nuclear Power Plant, UAE” World Nuclear University, Summer Institute 2023, Osaka, Japan, 26 June – 28 July 2023.

Zineddin, M., “Physical Security Systems at Nuclear Power Plant” World Nuclear University, Summer Institute 2023, Osaka, Japan, 26 June – 28 July 2023.

Zineddin, M., “Cross-Cultural Communication” World Nuclear University, Summer Institute 2023, Osaka, Japan, 26 June – 28 July 2023.

Zineddin, M., “Nuclear Safety Culture” World Nuclear University, Summer Institute 2023, Osaka, Japan, 26 June – 28 July 2023.

Zineddin, M., “Human Performance Principles and Tools” World Nuclear University, Summer Institute 2023, Osaka, Japan, 26 June – 28 July 2023.

Zineddin, M., “Explosion Effects and Physical Security Protection,” World Utilities Congress, Abu Dhabi, United Arab Emirates, 8-10 May 2023.

Zineddin, M., “Security Risk Management: Decision Support for Physical Protection,” World Utilities Congress, Abu Dhabi, United Arab Emirates, 8-10 May 2023.

Zineddin, M., Al Naqbi, F., “Effective Implementation of an Insider Threat Mitigation Program,” World Utilities Congress, Abu Dhabi, United Arab Emirates, 8-10 May 2023.

Zineddin, M., “*Physical Protection Systems at Nuclear Power Plant*,” Khalifa University for Science, Research and Applied Technology, Abu Dhabi, UAE, November 18th, 2015.

Zineddin, M., “*Improvements for Safety and Security Practices for New and Existing Infrastructure Facilities*,” 3rd Annual Saudi Safety and Security Conference, Dammam, Kingdom of Saudi Arabia, March 3 - 6, 2013.

Zineddin, M., “*Panel on Hotel Security*,” ASIS 4th Middle East Security Conference and Exhibition, Dubai, UAE, February 17 - 19, 2013.

Zineddin, M., “*Security Planning for the GCC’s Newest Construction and Infrastructure Developments*,” Ministry of Interior’s 15th Annual IFSEC&OSH Arabia Conference, Riyadh, Kingdom of Saudi Arabia, December 9– 11, 2012.

Zineddin, M., “*Anti-terrorism and Force Protection Design*,” Middle East Homeland Security

Summit, Abu Dhabi, UAE, April 23rd – 24th, 2012.

Zineddin, M., “*Antiterrorism and Physical Security*,” ASIS 3rd Middle East Security Conference and Exhibition, Dubai, UAE, February 19 - 21, 2012.

Zineddin, M., “*Structural Hardening in Petrochemical industry*,” GASCO Manufacturing Exhibition and Service Providers, Abu Dhabi, UAE, November 21st – 23rd, 2011.

Zineddin, M., “*Blast Effects and Protective Technology Design*,” The Fourth International Conference on Safety and Security Engineering, SAFE 2011, Antwerp, Belgium, July 4 - 6, 2011.

Zineddin, M., “Antiterrorism Protection and Protective Engineering Design,” NATO-Russia Advanced Research Workshop on Comparative Analysis of Technological and Intelligent Terrorism Impacts on Complex Technical Systems, Moscow, Russia, April 5-7, 2011.

Zineddin, M., “*Explosive Identification and Recognition*,” The second F1 Training Seminars, Abu Dhabi, UAE, November 1 – 3, 2010.

Zineddin, M., “Explosion Effects, Antiterrorism Protection, Protective Design and Blast Harden Structures,” U.S. Department of State, Diplomatic Security, OSAC Doha 2010 Middle East and North Africa Regional Conference, Doha, Qatar, September 27-29, 2010.

Zineddin, M., “Surface Transport Safety, Security and Emergency Management Strategy,” Department of Transport, Abu Dhabi, UAE, August 18, 2010

Zineddin, M., “Explosion Effects, Mitigation & Protective Design,” Good Harbor Consulting, LLC, Abu Dhabi, UAE, March 16, 2010.

Zineddin, M., “Explosion Effects and Mitigation,” Gulf Flight Safety Committee, GFSC Meeting No. 020/2010, Abu Dhabi, UAE, March 3, 2010.

Zineddin, M., “*Improvised Explosive Devices (IEDs)*,” The First F1 Training Seminars, Abu Dhabi, UAE, October 29 – 31, 2009.

Zineddin, M., “Blast Effects and Protective Structures? An Interdisciplinary Course for Military Engineers,” The Third International Conference on Safety and Security Engineering, SAFE 2009, Rome, Italy, July 1-3, 2009.

Zineddin, M., “Numerical Simulation of Reinforced Concrete Slabs Subjected to Impact Loading,” Fifth International Conference on Concrete Under Severe Conditions; Environmental and Loading, Tours, France, June 4-6, 2007.

Zineddin, M., “Size and Rate Effects of Concrete Members Based on Linear Elastic Fracture Mechanics,” Fifth International Conference on Concrete Under Severe Conditions; Environmental and Loading, Tours, France, June 4-6, 2007.

Zineddin M., “Bridges Protection Against Explosive Incidents,” Gulf Traffic 2005 Conference, Dubai, UAE, 12-14 December 2005.

Zineddin, M., “Risk and Vulnerability Assessments for High Rise buildings and Towers,” The 7th IFHS International Conference on Multi-purpose High-Rise Towers and Tall Buildings,

Dubai, UAE, December 10-11, 2005.

Zineddin, M., “Risk Assessment and Management process of buildings and facilities,” The First National Seminar on Construction Project Management, Dubai, UAE, 27 April, 2005.

Zineddin, M., “Concrete Cylinders Under Compressive Impact,” Fourth International Conference on Concrete Under Severe Conditions: Environment and Loading, Seoul, Korea, June 29, 2004.

Zineddin, M., “Experimental Study of Reinforced Concrete Slabs Subjected to Impact Loading,” Fourth International Conference on Concrete Under Severe Conditions: Environment and Loading, Seoul, Korea, June 29, 2004.

Zineddin, M., “Numerical Simulation of Concrete Slabs Under Impact Loading,” First International Conference: Application of Traditional and High-Performance Materials in Harsh Environments, American University of Sharjah, Sharjah, UAE, January 21, 2004.

Zineddin, M., “Concrete Cylinders Under Sever Compressive Loads,” First International Conference: Application of Traditional and High-Performance Materials in Harsh Environments, American University of Sharjah, Sharjah, UAE, January 21, 2004.

Zineddin, M., “Reinforced Concrete Slabs Subjected to Localized Impact,” Invited Seminar, University of Sharjah, Sharjah, UAE, December 16, 2003.

Zineddin, M., “Dynamic Response of Reinforced Concrete Slabs Subjected to Impact Loading,” The Ninth Arab Structural Engineering Conference, Abu-Dhabi, UAE, Nov. 30, 2003.

Zineddin, M., “Structural Concrete Slabs Under Impact Loading,” Invited Seminar, American University in Dubai, Dubai, UAE, May 12, 2003.

Zineddin, M., “Size Effect in Normal and High-Strength Concrete Cylinders Subjected to Impact Loading,” Proc. 11th International Symposium on Interaction of the Effects of Munitions with Structures, Mannheim, Germany, May 8, 2003.

Zineddin, M., “Structural Concrete Slabs Under Impact Loading,” Proc. 11th International Symposium on Interaction of the Effects of Munitions with Structures, Mannheim, Germany, May 7, 2003.

Zineddin, M., “Behavior of Reinforced Concrete Slabs Under Impact Loading,” *Structural Seminars Series*, Department of Civil Engineering, The Pennsylvania State University, October 2002.

Zineddin, M., “Precision Impact Testing and Code Validation,” Technical Presentation, U.S. Army Corps of Engineers, Engineering Research and Development Center Advisory Committee, November 2001.

Zineddin, M., “Numerical Simulations of Reinforced Concrete Slabs Subjected to Impact Loading,” *Structural Seminars Series*, Department of Civil Engineering, The Pennsylvania State University, September 1996.

SUPERVISED DISSERTATIONS/THESES:

CV – Dr./Prof. Zineddin

| <u>Student Name</u> | <u>Degree</u> | <u>Granted</u> | <u>Title of Dissertation/Thesis</u> |
|----------------------------|----------------------|-----------------------|---|
| Mahra Al Khouri | M. A. | 2012 | CPTED in Abu Dhabi, Paris-Sorbonne Abu Dhabi |
| Waleed H. Ahmed | M. A. | 2014 | Ballistic and Blast Resistant Windows for UAE |
| Hamad M. Al Ameri | M. A. | 2013 | The Current Status of IT Security in UAE |
| Fatima Al Foulathi | M. A. | 2014 | Security and Money Laundering in UAE |
| Nasser K. Al Kendi | M. A. | 2013 | Integration of Security planning Between Public Sectors and Armed Forces |
| Rashed K. Al Kindi | M. A. | 2013 | Abu Dhabi Police and Counter Terrorism Initiatives |
| Ali M. Alameri | M. A. | 2014 | The Effectiveness of UAV in Combatting Terrorism |
| Sultan M. Alketbi | M. A. | 2013 | Force Protection and Counter Terrorism Standards for UAE |
| Hasan H. Almehairi | M. A. | 2014 | Safety and Security Planning Manuals for UAE |
| Bader K. Alnuaimi | M. A. | 2013 | Aviation security Assessment of Abu Dhabi International Airport |
| Mohamed Al Zaabi | M. A. | 2013 | The Roles of the Higher National Security Council |
| January L. Meley* | M. S. | Dec. 03 | Finite Element Code Validation Using Precision Impact Test Data on Reinforced Concrete Beams |
| Craig Starr* | M. S. | Aug. 03 | Using Precision Impact Test Data on Reinforced Concrete Beams Impact Testing of Autoclaved Aerated |
| Joby John* | Ph. D. | Aug. 03 | Concrete Panels under Impact Load Linear and Nonlinear Analysis of Orthotropic Corrugated-Core Sandwich Plates |
| Motaze El-fahel* | Ph. D. | May 03 | Size Effects in Normal & High Strength Concrete Cylinders Subjected to Static & Dynamic Axial Compressive Loads |
| Hyun Chang Yim* | M. S. | May 03 | Modeling of Autoclaved Aerated Concrete Beams Under Localized Impact |
| Richard Schoedel* | M. S. | Dec. 02 | Shear Behavior in Structural Concrete Members Under Short Duration Dynamic Loads |
| Jong Yil Park* | M. S. | Aug. 02 | A Confined Concrete Model for Columns Under Combined Axial Load And Bending Loads |
| Tapan Sabuwala* | M. S. | May 02 | Finite Element Analysis of Steel Beam to Column Connections Subjected to Blast Loads |
| Shun Mason* | B. S.(IUG) | Dec. 02 | Size & Strain Rate Effects on the Strength of Concrete Subjected To Axial Compressive |

Loads

| | | | |
|-------------|--------------|---------|--|
| Jeong Lim* | M. S. | Dec. 01 | Progressive Collapse Analysis of Eight Story Building |
| Ben Robert* | B. S.(Honor) | Aug. 97 | Finite Element Analysis of Reinforced Concrete Slabs Subjected to Impact |

FUNDED RESEARCH PROJECTS:

| <u>Project Title</u> | <u>Sponsor</u> | <u>Amount</u> | <u>(Mo/Yr)</u> |
|---|--|----------------------|-----------------------|
| Security Operation Readiness Training | ENEC | \$50,000,000 | 09/2014 |
| Population Dynamics, Sustainable Economic Growth, Energy and the Environment | KUIRF | \$330,000.00 | 09/2013 |
| Applying Advanced Analytics Techniques to Discover and Prevent Money Laundering | Lockheed Martin | \$150,000.00 | 09/2012 |
| Safety and Security Planning Manual | Urban Planning Council | \$500,000.00 | 05/2011 |
| Security Framework for Abu Dhabi Accountability Authority (ADAA) | ADAA/Musanada | \$150,000.00 | 09/2011 |
| Gulf Programming Contest | Lockheed Martin | \$50,000.00 | 03/2012 |
| CRADA (IEDs) | Ultimate Defense Inc. | \$50,000.00 | 05/2009 |
| CRADA (IEDs) | Sandia Solar Tec. LLC. | \$75,000.00 | 01/2009 |
| Cadet Summer Research, AFRL/RXQ | Tyndall Air Force Base | \$55,000.00 | 05/2008 |
| Precision Impact Testing Lab | AF/Dean of Faculty | \$155,000.00 | 08/2007 |
| New Blast Effects Course | ACE Fund | \$5,000.00 | 08/2007 |
| Culture Immersion Program | Olmsted Foundation | \$16,500.00 | 08/2008 |
| Culture Immersion Program | Olmsted Foundation | \$25,000.00 | 08/2007 |
| Classroom Teaching | AFSOR | \$12,500.00 | 08/2008 |
| Static Testing Frame | AF/Dean of Faculty | \$58,000.00 | 08/2007 |
| Numerical Simulation Lab | IITA Fund | \$15,000.00 | 08/2008 |
| HP Workstation | HP Middle East | \$20,000.00 | 05/2005 |
| Time-Dependant Size Effects in* Compressively Loaded Concrete Cylinders | NSF | \$145,000.00 | 01/2003 |
| Time-Dependent Size Effects in High* Strength Concrete | Norwegian Defense Construction Service | \$63,000.00 | 01/2002 |

DoD Anti-Terrorism/Force Protection*

U.S. Army Engineer
Research & Develop.
Center

\$4.4 Million

09/2000

*Co-PI on the project.

PHYSICAL SECURITY ENGINEERING DESIGN EXPERIENCE:

- Designed and fortified Armored Vehicles for military and commercial use.
- Designed pre-stressed concrete box to resist blast loading.
- Designed pre-stressed concrete flowerpots to be placed around the perimeter of buildings to resist impact loads.
- Designed a steel system to reduce accidental explosion effects during car shredding operations.
- Designed office space in a chemical plant to resist accidental explosion effects.
- Designed a timber wall system to resist impact loadings.
- Assessed the physical security condition and provided engineering design recommendations for an international business company.
- Designed reinforced concrete slabs to resist impact loadings.
- Designed various concrete mixes to resist impact loadings.
- Designed a high impact drop hammer to generate high energy for testing of structural members under impact.
- Designed a swinging mass to test structural members under impact loadings.
- Designed precision impact testing equipment in support of computer code validation and verification.
- Performed advanced nonlinear finite element analysis of concrete and steel structures.
- Performed nonlinear finite element modeling and analysis of impact tests.
- Developed and designed a blast resistant air cargo container.
- Developed and designed a corrugated core blast door.
- Developed and designed an antiterrorist gate for nuclear power plants.
- Developed and designed various blast door and window assembly to resist blast pressure ranging from 1-50 psi.
- Designed a concrete-filled radiation shielding door assembly.
- Designed electro-hydraulic operated blast resistant equipment.
- Designed personnel doors for a contained firing facility.
- Designed blast resistant doors for nuclear weapons assembly and disassembly facility.
- Designed bullet resistant products including doors, windows and panels.
- Designed watertight and gastight doors.
- Designed security entrances for military facilities and airport security gates to resist explosion and fragmentation.

PROFESSIONAL DEVELOPMENT COURSES

| Title | Completion Date |
|--|------------------------|
| Community Adult & Pediatric CPR/AED/Standard First Aid | 17/05/2023 |
| Fire Warden | 16/11/2022 |

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|--|------------|
| Certified Nuclear Security Professional (CNSP), Nuclear Security for Scientists, Technicians and Engineers Certification Program, World Institute for Nuclear Security, WINS | 26/11/2020 |
| Certified Nuclear Security Professional (CNSP), Nuclear Security Management Certification Program, World Institute for Nuclear Security, WINS | 19/09/2019 |
| The Coaching Manager, British School of Coaching | 10/12/2018 |
| Certified Nuclear Security Professional (CNSP), Nuclear Security Incident Management Certification Program, WINS | 20/11/2017 |
| Excellence in Nuclear Security Leadership | 20/10/2016 |
| ERO-09 Assembly, Accountability and Evacuation | 01/09/2015 |
| ERO-08 Security Actions and Security-related Events | 31/08/2015 |
| ERO-04 Generic Actions, Communication Systems and Events | 23/08/2015 |
| ERO Orientation Course | 23/08/2015 |
| Human Performance Training Lab | 15/07/2015 |
| Human Performance Instructor Led Training | 29/06/2015 |
| General Employee Training (Refresher) | 16/03/2015 |
| Document Development and Revision Tracking | 10/02/2015 |
| Classified Information Protection Program | 23/10/2014 |
| ARM Training for NAWAH | 07/09/2014 |
| Shin Kori 1 Nuclear Power Plant Course | 25/08/2014 |
| Quality Assurance | 23/06/2014 |
| Instructor Training and Qualification | 23/06/2014 |
| Shin Kori Nuclear Power Plant Classroom | 27/05/2014 |
| Anti-Fraud and Misconduct Program | 13/05/2014 |
| Apparent Cause Evaluation | 30/04/2014 |
| The Code of General Business Principles and Ethics | 24/04/2014 |
| Classified Information Protection Program Fundamentals | 24/04/2014 |
| Business Information Protection Program | 21/04/2014 |
| Corrective Action Program | 10/04/2014 |
| Human Performance Class | 10/04/2014 |
| General Employee Training | 08/04/2014 |
| Nuclear Security culture | 23/02/2014 |
| Culture of Safety | 18/02/2014 |
| New Joiner Orientation | 16/02/2014 |

***Certificate of Completion available upon request

CITIZENSHIP

US Citizen

UAE Golden Visa Holder

REFERENCES

Available upon Request