

Mira SHEHU

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EDUCATION

2007 **PhD.** Doctor of Science in Mechanical Engineering, Polytechnic University of Tirana & Technical University Bergakademie - Freiberg, GPA: 49/50

Dissertation:

“Structural assessment of defects in the welded connections used in ship constructions, improved by Fracture Mechanics”

2003 Master of Science in Mechanical Engineering, Polytechnic University of Tirana, Albania, GPA 3.87

Dissertation: *“Determination of the maximum Reinforcement around central elliptical cracks inclined in a thin plate with one and two axis loading” .*

1996 **B.S.** Bachelor of Science in Mechanical Engineering, Mechanical Engineering & Constructions Polytechnic University of Tirana, Albania, GPA. 3.92

PROFESSIONAL EXPERIENCE

2009 -2016 Associate Professor, Mechanical and Naval Engineering & Mechanics Dept., Univ. of Vlora

2007- 2009 Assistant Professor, Mechanical and Naval Engineering & Mechanics Dept., Univ. of Vlora

2003-2007 Research Associate, Mechanical and Naval & Mechanical Engineering Dept., Univ. of Vlora

2011 Summer Intern “Diagnostics of Materials” University of Tetovo

2010 Summer Intern “Diagnostics of Materials” University of Pristina

2007 Summer Intern “Diagnostics of Materials” University of Vlora

2006 Summer Intern “Diagnostics of Materials” University of Elbasan

2002-2003 Adjunct Professor, Mechanical Engineer Faculty, Polytechnic University of Tirana

1999-2003 Lecturer Mechanical and Naval Engineering & Mechanical Dept., Univ. of Vlora

PROFESSIONAL OVERVIEW

My main research interest is in fracture mechanics field related to investigations on fracture behavior of steel constructions, especially for shipbuilding steel. The primary goal in this field of research is the assessment of fracture mechanics components with analytical methods. Mechanical testing and fracture mechanical characterization are used not only for metal but and for fracture mechanical characterization in ceramic materials. Science research in mechanical testing, Charpy impact test, MTS testing machine, ESACRACK analyses and fatigue test, Integrity assessment analysis by SINTAP and SENB and CT testing in static and cyclic loading, in low, transition and room temperature with ASTM E 647 and ISO 12135 standards. Nondestructive testing is also a field of my interest.

Able to produce accurate mechanical engineering drawings, applied AUTOCAD drawings, mechanical tools, tolerances & fit, sketches, assembles. Analysis stress strain graphs, *SIF*, weld defects/imperfections by penetration, brittle & ductile fracture, stress corrosion cracking, and fatigue failure referred to codes, standards, and components by specific guidelines. In relation to these research efforts, I am interested in teaching topics related to any aspect of strength of materials in addition to computational methods in engineering. Excellent skills in MS Office, PowerPoint, Word and Excel, CAD, and Solid work.

FELLOWSHIPS & AWARDS

- 2002 to 2016 DAAD project and NSTM (**N**etwork of **S**cience and **T**echnology of **M**aterial), financed by German program, for seminar, guest lecture, exchange experience of teaching, thesis diploma for student, publishing, summer schools, transcripts, conferences, and workshops.
- 2008 Project CEEPUS II - SK-0030-04-0809 "From preparation to Development, implementation and utilization of Joint Programs in study area of Production Engineering – contribution to higher flexibility and mobility of students in Central European region."
- 2002 IMG TEMPUS, Polytechnic University of Bari, Italy.
- 2001 II INTERREG in the field of Mechanical Engineering, Polytechnic University of Bari, Italy.

TEACHING EXPERIENCE

ENGINEERING DRAWING

- Introduced students to basic understanding of the fundamentals of engineering drawing, mainly visualization, graphics theory, standards and conventions of drawing, the tools of drawing and the use of drawings in engineering applications.
- Used to visualize the engineering component from any drawing sheet. , followed by projection techniques as well as to choose problems with illustration the concepts clearly.

FLUID MECHANICS

- Introduced fundamental principal in the statics and dynamics of fluids.
- Used to choose the right formulation, integral vs differential, for fluid flow problems also to work with different frames of reference and use them to simplify problems.

MECHANICS OF MATERIALS

- Introduced definitions of stress and strain, uniaxial loading, torsion, bending moments and shear forces in beams, bending stresses and shear stress in beams, and stress transformation.
- Reviews mechanics of materials, beam theory, combined loading, stress transformation, shear center, asymmetrical bending, and deflection of beams, statically indeterminate beams, energy methods, inelastic bending, and beam column instability.

COMPUTER and AIDING DESIGN

- Introduced to basic of CAD techniques as part of CAE, playing an important role in engineering design.
- Students will understand the role of CAD in mechanical component and system design by creating geometric models and engineering drawings, will understand the basic mathematics fundamental to CAD software and will work in teams to design a mechanical system and fabricate a prototype of their design.

SHIP PROPULSION and PLANTS

- Addressed the application of the principles of ship propulsion and plants, to ship shape vessels, encouraging the development of the knowledge and the principles of: powering of ships, theory of propeller action. Cavitation.
- Is designed primarily for candidates with an interest in the marine naval architecture subject area.

FRACTURE & FATIGUE MECHANICS

- Master the fundamental concepts of Fracture and fatigue of solids; stress intensity factors; stability of cracks; compliance and energy methods; plane stress, plane strain effects; crack propagation and arrest criteria
- Master the phenomenology of fracture in metals, polymers, ceramics and composites and provide analytical evidence of these processes.
- Apply tools to failure prediction and failure analysis
- Explore advanced topics in fracture including fatigue, creep fracture and environmentally assisted fracture

MECHANICS OF SOLIDS

- Introduced the relationship between external forces acting on elastic and inelastic bodies and the resulting behavior; stress and deformation of bars, beams, shafts, pressure vessels; stress and strain; combined stresses; columns.

TESTING MECHANICAL

- Introduced a range of experiments (*Tension and compression testing, Impact testing including Charpy, Fatigue specimen testing, Fracture toughness including K_{1c}, J_{1c}*) in the lab to demonstrate the concepts of destructive and static testing, including tensile and Charpy impact tests, to more technically demanding fatigue and fracture toughness tests.

SERVICE TO THE DEPARTMENT & UNIVERSITY

2004-2016	Board's Member of NSTM (N etwork of S cience and T echnology of M aterial)
2007-2009	Dean of the T echnical S ciences C ollege, University "Ismail Qemali" Vlore, Albania
2011- 2013	Chair of Naval & Mechanical Department, University "Ismail Qemali" Vlore, Albania
2008 – 2011	Member of University Senate, University "Ismail Qemali" Vlore, Albania
2009 -2010	Dean of the Postgraduate School, University "Ismail Qemali" Vlore, Albania

CONGRESS, WORKSHOPS, CONFERENCES, SCIENTIFIC BULLETIN, PROCEEDINGS

September 1, 2010, 10th Congress "New trends in Fatigue and Fracture", "The assessment of the fracture toughness for ferrite steels by Charpy energy in the condition of room, very low and transition temperature", Metz, France

May 15 – 18, 2008, conference "Management and Sustainable Marine Development", "Crack growth rate calculations in the structural and shipbuilding steel by NASGRO 3.0 using analytical approach ESACRACK", Romania

15 – 18 May 2008, conference "Management and Sustainable Marine Development", "How can impact science and technology policies the sustainable life and development", Romania

October, 2007, International Consortium "Business and Employment", "The role of management in the development of Business and in the growth of employment in Kosovo as well as in other transitional countries", Pristine, Kosovo.

April 10-13, 2007, First Serbian (26th YU) Congress on Theoretical and Applied Mechanics, "Conventional and Fracture Mechanical Valuation of Structural Steels with High Toughness for S355, S460 Grade Steels". Accepted for publication: 2006-09-14 Kopaonik, Serbia.

2007, Scientific Bulletin Nr.11, "the parameters of the cracks, concept J-integral, Charpy –energy" Polytechnic University of Tirana (UPT), Tirana.

2007, Scientific Bulletin Nr.11, "Ecologic, physical- chemical and bacteriologic parameters of Oher" Polytechnic University of Tirana (UPT), Tirana,

2006, Scientific Bulletin, Nr.6, "The evaluation of the critical stress in the elliptical crack two axial loading", University of Vlora

2006, NT2F6 "New Trends in Fatigue and Fracture " Conference, "The behavior of Fatigue crack growth in Structural and shipbuilding steel, S355, S283, S460", Slovenia,

2006, NT2F6 "New Trends in Fatigue and Fracture "Conference, "Analytical concepts of the security evaluation of components through the method of destruction mechanics and possibilities of their applications in the ship building", Slovenia

2005, Symposium „Materials and their use “, "The aim of the collaboration network among universities in the field of Materials Science and Technology", Tetovo,

2005, NT2F5 Conference, "New Trends Fatigue and Fracture “, "Conventional and fracture mechanical valuation of structural steels with high toughness for thick plates", Bari, Italy

2005, Symposium „Materials and their use “, "Evaluation procedure of the structural integrity BY SINTAP, application of impact experiments by Charpy ", Tirana.

2004, IV Symposium „Materials and their use “, "Mechanical conventional proves of the structural steels destruction with high toughness", Vlore.

2004, Symposium, „Schadens analyse und Fehler beim Waermebehandlung und chemisch-thermische Behandlung II“, Vlore

2004, Symposium, "The analysis of damages and defects during the thermic and thermo-chemical treatment of materials I", Pristina

2003 Workshop, "Werkstoff wissesenschaft" Technische Universitat, Bergakademie, Freiberg, Germany

2003, Workshop, Production and Projection Department "Fracture and Fatigue Mechanics", DAAD, , Laboratory Treatment, "Diagnostics of materials" ,Freiberg, Germany

2003, Symposium III "Materials and their use", "Fracture and fatigue on the surface contact element", Pristina

2002, Symposium II "Materials and their use", "Maximal Stress in the thin plate with an elliptical crack axial Loading", Tirana

2001, INTEREG II, Specialization of 5-months in the Polytechnic University of Bari, Production and Projection Department, Italy

09-January-28 February 2002, Specialization TEMPUS IMG project, Bari, Italy.

7-10 May 2000, Workshop with the topic "Advanced research notch effects", Durres, Albania.

INTERNATIONAL & TRAINING

- 2014 Training Certificate, Rolls- Royce Marine Akon LNG Familiarization course, Rolls-Royce Marine AS, Marine Training – Aalesund, Norway
- 2014 Aalesund University college, Seminar: Green ship Technology; LNG filled machinery systems; Gas engine technology; Control and Monitoring of complex machinery; Safety related to gaseous fuels; Research on alternative fuels technology. Visits: Diesel Engine manufacture – Roll Royce – Bergen; Ship yard – VARD Offshore Special Vessels; Equipment manufacturer – SPERRE compressors and Coolers – Aalesund, Norwegian maritime research center – Trondheim.
- 2010 "Training Course for Instructors "IMO Model Course 6.09, in accordance to what is established in Section A1/6 of the STCW Code, STCW78/95 Convention.
- 2005 The coordination of teaching plans and preparation of the concept concerning the creation of the collaboration network" Science and technology of materials" Macedonia U-Pristine, U-Vlora, UP- Tirana, U-Tirana, U-Elbasan, U-state Tetovo, German Enterprising LVQ Mulheim / Magdeburg, TU Bergakademie Freiberg, Germany

EDITOR OF SCIENTISTS BULLETIN

Member of Scientist Board in Scientist Bulletin No 2, Volume 2, 2015 ISSN 2310-6719,
<http://univlora.edu.al/wp-content/uploads/2015/10/Nr-2-V-2-2014-ISSN-2310-6719.pdf>

Member of Scientist Board in Scientist Bulletin No 3, Volume 1, 2015 ISSN 2310-6719,
<http://univlora.edu.al/wp-content/uploads/2015/10/Nr-3-V-1-2015-ISSN-2310-6719.pdf>;

Member of Scientist Board in Scientist Bulletin No 1, Volume 2, 2013 ISSN 2310-6719,
<http://univlora.edu.al/wp-content/uploads/2015/10/Nr-1-V-2-2013-ISSN-2310-6719.pdf>

Member of Scientist Board in Scientist Bulletin No 1, Volume 1, 2013 ISSN 2310-6719,
<http://univlora.edu.al/wp-content/uploads/2015/10/Nr-1-V-1-2013-ISSN-2310-6719.pdf>

HOBBIES / ACTIVITIES

Basketball, Music