

Academic curriculum vitae



Personal information

First and last name	Mirsad Topalovic
Addresses	Univerzitetska 2, Tuzla
Phones	+387 35 320 578
Fax	+387 35 320 570
Email/Web	mirsad.topalovic@untz.ba , mirsadtopalovic311@gmail.com
Citizenship	Bosnia and Herzegovina
Date of birth	03.11.1967.
Gender	M

Current workplace/position/title	University of Tuzla, Faculty of Mining, Geology and Civil Engineering, teacher, full professor
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Citations

Google Scholar

Quotes	38
H - index	3
i10 – index	1

Research Gate

Quotes	3
RG Score	4.6

Scopus

Quotes	13
H - index	1

Scopus ID: 55325881000

ORCID ID: 0000-0001-6322-7462

Work experience

Dates	from 18.09.2017.
Position / occupation / title	Associate Professor, Department of Building Structures
Basic responsibilities and duties	Subject teacher in the subjects Stability and Dynamics of Structures, Bridges, Elements of Building Construction, Seismic Design, Building Design
Employer name	RGGF, University of Tuzla
Type of business activity of the employer	Scientific research and education
Dates	from 17.09.2012. – 18.09.2017.
Position / occupation / title	Assistant Professor, Scientific Area of Building Structures
Basic responsibilities and duties	Subject teacher in the subjects Stability and Dynamics of Structures, Bridges, Elements of Building Construction, Seismic Design, Building Design
Employer name	RGGF, University of Tuzla
Type of business activity of the employer	Scientific research and education
Dates	from 17.09.2008. - 17.09.2012.
Position / occupation / title	Senior Assistant, Scientific Area Civil Engineering
Basic responsibilities and duties	Associate in exercises in the subjects: Bridges I and II, Elements of Building Construction I and II, Building Materials I and II, Stability and Dynamics of Structures.
Employer name	RGGF, University of Tuzla
Type of business activity of the employer	Scientific research and education
Dates	from 01.10.2004 to 17.09.2008.
Position / occupation / title	Assistant, Scientific Area Civil Engineering
Basic responsibilities and duties	Associate in exercises for the subjects Massive Bridges, Elements of Building Construction I and II, Building Materials I and II, Stability and Dynamics of Structures.
Employer name	RGGF, University of Tuzla
Type of business activity of the employer	Scientific research and education

Education and training

Dates	1982.
Qualification acquired	-
Field of science and profession, acquired titles and skills	Primary school education
Name and type of organization	Elementary school "Filip Kljaić" in Zvornik, Bosnia and Herzegovina
Dates	1986.
Qualification acquired	IV degree
Field of science and profession, acquired titles and skills	Financial technician

Name and type of organization	Secondary School Zvornik, Bosnia and Herzegovina
Dates	2004.
Qualification acquired	VII degree
Field of science and profession, acquired titles and skills	Civil Engineering, Graduate Civil Engineer
Name and type of organization	University of Tuzla, RGGF, Department of Civil Engineering
Dates	2008.
Qualification acquired	VII degree – Master of Technical Sciences in the field of Civil Engineering
Field of science and profession, acquired titles and skills	Scientific field: Civil Engineering, Scientific field: Building Structures
Name and type of organization	University of Tuzla, Faculty of Mining, Geology and Civil Engineering
Dates	2012
Qualification acquired	Doctor of Technical Sciences in the field of Civil Engineering
Field of science and profession, acquired titles and skills	Scientific field: Civil Engineering, Scientific field: Building Structures
Name and type of organization	University of Tuzla, Faculty of Mining, Geology and Civil Engineering

Scientific papers within formal education

Published scientific papers in the rank of assistant

Title of work	<i>Determination of the basic form of oscillation of frame constructions by approximate methods ,</i>
The institution where the paper was prepared	Proceedings of the journal of the Faculty of Mining, Geology and Civil Engineering in Tuzla, Tuzla 2005.
Year and place	Tuzla 2005.
Summary	The paper discusses free oscillations of frame structures using approximate methods. Frame structures with rigid and deformable beams are often used in practice. Based on the numerical analysis of several such systems, approximate forms for the fundamental oscillation tone of frame structures have been proposed. The results of the approximate calculation have been compared with approximate procedures with increased precision and computers. In the application of computers to the analysis of complex structural systems, there is a possibility of error in data entry, so the approximate procedure for determining the fundamental form and oscillation period may be suitable for checking the results of computer analysis of complex systems.
Comment	
Title of work	Causes of the collapse and rehabilitation of the machine hall for the overhaul and maintenance of the Banovići mine's dump truck,
The institution where the paper was prepared	Faculty of Mining, Geology and Civil Engineering in Tuzla
Year and place	Proceedings of the Faculty of Mining, Geology and Civil Engineering in Tuzla, Tuzla 2005.
Summary	

Comment

Published scientific papers in the rank of senior assistant

Title of work

Modeling of honeycomb supports using the finite element method

The institution where the paper was prepared

RGGF Tuzla, University of Tuzla

Year and place

2008. Tuzla

Summary

This paper presents a contemporary and modern method for calculating honeycomb steel girders using FEM (finite element method). The honeycomb girder was modeled using finite elements in the SAP10 software program, and the obtained results were compared with the experimental model, i.e. the results of laboratory testing of a girder that had the same nominal dimensions as the girder modeled using FEM.

Comment

Title of work

The influence of the A_z/A_t ratio on seismic forces in building structures

The institution where the paper was prepared

RGGF Tuzla, University of Tuzla

Year and place

2008. Tuzla

Summary

This paper reviews the change in dynamic characteristics and magnitude of seismic forces depending on the wall surface ratio (A_z) and floor plan surface ratio (A_t), on a dual system of buildings. Two possibilities arise. The first, that the area of the walls is constant ($A_z = \text{const.}$) while the associated floor plan area is variable and the second that the associated area of the floor plan is constant ($A_t = \text{const.}$) while the area of the walls is variable. In the paper, the first case - with a changing associated floor plan, i.e., was analyzed through a numerical example, for three constructions of the same storey and the same dimensions of beams and columns. $A_z = \text{const.}$

Comment

Title of work

Analysis of frame construction with yielding connections in nodes

The institution where the paper was prepared

RGGF Tuzla, University of Tuzla

Year and place

2008. Tuzla

Summary

The paper considers members with bending moment transfer connections that are not rigid at the ends so that they allow relative rotation of the members at the node. With the known moment-rotation relationship of the connection, the static effects in the structure are determined by the modified stiffness matrix of the members. The stiffness of the connections can be determined by appropriate numerical analysis or experiment for a specific type of connection. This procedure can be applied to both frame and other member structures.

Comment

Title of work

Influence of yielding soil on seismic forces of AB frame constructions

The institution where the paper was prepared

The first scientific and professional conference of GTZ 2009.

Year and place

Tuzla 29-30 October 2009

Summary

Comment

The influence of concrete shrinkage effects in frame constructions

Title of work
The institution where the paper was prepared
Year and place
Summary

The first scientific and professional conference of GTZ 2009.
Tuzla 29-30 October 2009.

Comment

Title of work
The institution where the paper was prepared
Year and place
Summary

Natural fibrous thermal insulation materials in building,
14th International Research/Expert Conference "Trends in the Development of Machinery and Associated Technology", TMT 2010,.
Mediterranean Cruise, 11-18 September 2010

Comment

Title of work
The institution where the paper was prepared
Year and place
Summary

Concept of programmed behavior of reinforced concrete frames
Third Scientific and Professional International Conference – Earthquake Engineering and Engineering Seismology, Divčibare, 22 – 24 May 2012 (UDK: 624.012.45 : 519.6)
Divčibare, May 22 – 24, 2012.

Comment

Title of work
The institution where the paper was prepared
Year and place
Summary

Influence of imperfection on the ultimate and serviceability limit state of honeycomb beams
2nd International Scientific Meeting, GTZ 2012.
Tuzla June, 07-09, 2012.

Comment

Published scientific papers in the title of assistant professor

Title of work
The institution where the paper was prepared
Year and place
Summary

The Determination of Beam Displacement with Isotropic Material Hardening by Energy Methods
TECHNICS TECHNOLOGIES EDUCATION MANAGEMENT (TTEM), Vol. 7. No. 2. 2012., pp.603-607 Impact Factor (2012) : 0.414
Tuzla, 2012.

using the linear theory of elasticity is not possible. Models of reinforced concrete frame structures with plastic joints were analyzed. The development of material nonlinearity was introduced by using the nonlinear force-deformation relationship in plastic joints, which was obtained experimentally. The model was analyzed so that energy balance is achieved by nonlinear deformations in the plastic joints of the frame structure beams and thus provides the ability to absorb and dissipate seismic energy. An overview of the results of testing the plastic joint model is given. The performance of the plastic joint behavior was analyzed and compared with the input earthquake energy in order to achieve energy balance.

Comment

Title of work

Energy balance by RC frame structures

The institution where the paper was prepared

12th International Scientific Meeting INDIS, Novi Sad, November 2012., Proceedings, pp. 327-334

Year and place

2012, Novi Sad, Serbia

Summary

The paper presents research aimed at defining the realistic response of a reinforced concrete frame structure exposed to a strong earthquake. At the stated loading, adequate analysis of the structure using the linear theory of elasticity is not possible. Models of reinforced concrete frame structures with plastic joints were analyzed. The development of material nonlinearity was introduced by using the nonlinear force-deformation relationship in plastic joints, which was obtained experimentally. The model was analyzed so that energy balance is achieved by nonlinear deformations in the plastic joints of the frame structure beams and thus provides the ability to absorb and dissipate seismic energy. An overview of the results of testing the plastic joint model is given. The performance of the plastic joint behavior was analyzed and compared with the input earthquake energy in order to achieve energy balance.

Comment

Title of work

Analysis of influential parameters for modeling of real behavior of bridges

The institution where the paper was prepared

12th International Scientific Meeting INDIS, Novi Sad, November 2012., Proceedings, pp. 344-352

Year and place

2012, Novi Sad, Serbia

Summary

The paper presents an overview of influential parameters for developing a model of real bridge behavior and the author's experiences related to determining influential parameters in situ and using empirical models. Some experiences of determining soil parameters in the vicinity of the bridge and bridge behavior are given on the example of a concrete girder multi-span bridge. Based on the presented experiences of the author and the experiences presented example of determining parameters in situ, the approach to creating a model of real bridge behavior. Recommendations are given for the analysis and definition of influential parameters of soil-bridge interaction.

Comment

Title of work

Experimentally obtained energy balance point of RC beam plastic hinges

The institution where the paper was prepared

SE-50EEE International Conference on Earthquake Engineering, May 2013, Skopje, Proceedings, Paper no. 543

Year and place

2013, Skopje, Macedonia

Summary

The paper deals with the research that defines the real response of reinforced concrete (RC) frame structures subjected to strong earthquakes. Using linear theory of elasticity seems inadequate for analyzing structure imposed by seismic load. Models of RC frame structures with plastic hinges were analyzed. Development of material non-linearity was introduced by using experimentally obtained non-linear moment-rotation relationship of plastic hinges. The model was analyzed in the way to achieve energy balance using non-linear relation in plastic hinges of RC frame structures and thereby provide the capacity of absorption and dissipation of seismic energy. Overview of test results of plastic hinges model was given. The performance of behavior of plastic hinge was analyzed and compared with the inputted earthquake energy with the aim to achieve energy balance.

<p>Comment</p> <p>Title of work</p> <p>The institution where the paper was prepared</p> <p>Year and place</p> <p>Summary</p>	<p>Assessment of Cable-Stayed Pedestrian and Motorway Overpass</p> <p>The Eight International Conference "Bridge in Danube Basin", Proceedings, pp. 117-127</p> <p>2013, Timisoara, Romania</p> <p>The paper summarizes an example of assessment of a cable-stayed pedestrian and motorway overpass in Tuzla city urban environment based on static and dynamic tests. The outlined research included testing of bridges induced by vehicles, ambient vibration testing, modal identification, finite element modeling and assessment of structural behavior. The field investigations involved measurement of deformations (displacement and dilatation), vibrations induced by vehicles and ambient vibrations. Modes were identified by using Enhanced Frequency Domain Decomposition techniques (frequency domain). Details on the experimental procedures, instrumentation and data analysis techniques are presented and discussed. In the numerical study, deformation forms and vibration modes were determined using a 3D finite element model of the bridge and the information obtained from the field tests. Some conclusions and recommendations for similar bridges were given at the end of the paper.</p>
<p>Title of work</p> <p>The institution where the paper was prepared</p> <p>Year and place</p> <p>Summary</p>	<p>SEISMIC RESPONSE ANALYSIS OF MULTI-SPAN CONCRETE GIRDER BRIDGES</p> <p>The Fourth International Conference "Earthquake Engineering and Engineering Seismology", Proceedings, pp. 203-210</p> <p>2014, Bor, Serbia</p> <p>The scope of this paper is to analyze the numerical models to predict the real seismic response of a multi-span reinforced concrete girder bridges. For this purpose, detailed seismic analysis of the multi-span reinforced concrete girder bridge over the river Bosnia in Sarajevo was performed, with the application of Spectral Analysis and Time History Analysis. Analysis of the non-linear response of the structure, using Push-over Analysis, was performed. The three-dimensional FEM model of the bridge, with the bearings and soil-structure interaction, was modeled. At the end of the paper the results of the analysis and comparison of the proposed numerical models are presented.</p>
<p>Comment</p>	
<p>Comment</p> <p>Title of work</p> <p>The institution where the paper was prepared</p> <p>Year and place</p> <p>Summary</p>	<p>System identification of RC girder bridges based on field measurements and numerical simulations</p> <p>Technical Journal, Vol.22, No.3, doi:10.17559/TV-20140603143241, Elsevier Ltd., pp.667-675; (Impact Factor (2017): 0.686)</p> <p>2015</p> <p>The paper provides an overview of the research carried out within the NATO project SfP 983828. The subject of the research is the identification of parameters that influence the dynamic response of existing reinforced concrete girder bridges, based on ambient vibration measurements and numerical simulations using finite element models (FEM). For this purpose, a bridge over the Bosna River near Sarajevo was instrumentalized. Ambient vibration tests and geophysical surveys were performed. The results were analyzed and an improved three-dimensional numerical model was developed that takes into account the interaction of the soil and the structure, as well as the interaction of the upper and lower machinery of the bridge. Models were developed with project parameters and parameters obtained by measurement. A comparative evaluation of the developed models was done and a model was verified that had the values of the dynamic characteristics of the structure consistent with the measured values. The results of the analysis show that the appropriate determination of the stiffness of the columns, road plate and bearings is a key parameter for reliable identification of the system.</p>
<p>Title of work</p>	<p>Identification of Modal Parameters of Bridges Using Ambient Vibration Measurements</p>

The institution where the paper was prepared	Shock and Vibration, Volume 2015, Article ID 957841, 21 pages, http://dx.doi.org/10.1155/2015/957841 (Impact Factor (2018): 1.857)
Year and place	2015
Summary	The paper provides an overview of ambient vibration tests and numerical analysis performed in the framework of Project NATO SfP 983828. The aim of the research is the definition of the dynamic characteristics of bridges on the examples. The paper considers three case studies: two older existing bridges and one newly constructed bridge. A comparative analysis of natural frequencies and mode shapes, obtained by ambient vibration measurements (AVM) and mathematical models (AMs), was carried out with the aim to demonstrate the usefulness of ambient vibration tests for identification of the modal parameters of the tested bridge structure. Agreement between AVM and AMs results is very good. The mode shapes are very similar. Some differences between computed and measured frequencies were obtained, which can be attributed to the real nature of the boundary conditions, the uncertainty in the material properties of structural elements, and the mathematical model assumptions.
Comment	
Title of work	ANALYSIS OF SITE EFFECTS ON BRIDGE STRUCTURE BY AMBIENT VIBRATION MEASUREMENTS
The institution where the paper was prepared	INTERNATIONAL SCIENTIFIC CONFERENCE "INDiS 2015" "Planning, Design, Construction and Renovation of Civil Engineering"
Year and place	25-27. November 2015, Novi Sad, Serbia
Summary	
Comment	
Title of work	<i>DETERMINING THE IMPACT BY SECOND-ORDER THEORY USING THE FINITE DIFFERENCE METHOD</i>
The institution where the paper was prepared	
Year and place	4th INTERNATIONAL CONFERENCE Contemporary achievements in civil engineering April 22, 2016 Subotica, SERBIA, Proceedings, p. 341
Summary	
Comment	
Title of work	Application of the gradual push method in seismic analysis of structures
The institution where the paper was prepared	Proceedings, Third International Scientific Conference E-GTZ 2016, pp.649-659.
Year and place	2016, Tuzla, Bosnia and Herzegovina
Summary	The Pushover method was developed as a result of the need for a faster calculation procedure that would assess the response of a structure to seismic loading with sufficient reliability. Various Pushover methods have been developed so far. This paper presents the application of the N2 method. Two examples are presented: a reinforced concrete frame structure and a reinforced concrete beam multi-span bridge. The results of the analysis performed using the N2 method are compared with the equivalent static load method and the nonlinear dynamic method (Time History Analysis).
Comment	
Title of work	Comparison of seismic analysis methods on the example of AB frame construction

The institution where the paper was prepared	Proceedings of the Fifth International Scientific and Professional Conference "Earthquake Engineering and Engineering Seismology", pp. 253-264.
Year and place	2016, Sremski Karlovci, Serbia
Summary	Methods of seismic analysis of structures range from simple and rational engineering procedures to complicated and detailed numerical analyses. The choice of analysis method depends primarily on whether it is a common design or a specific scientific research. The paper presents the basics of methods of seismic analysis of structures according to EN1998-1:2004: Linear analysis of equivalent static load, Modal analysis with response spectra, Nonlinear static method of gradual pushing and Nonlinear dynamic analysis in time. A multi-storey RC frame structure was analyzed according to the mentioned methods, the results were compared and recommendations were given.
Comment	
Title of work	FOUNDATION-SOIL INTERACTION AND BUILDING RENOVATION WITH MICROCHIPS
The institution where the paper was prepared	e-Zbonik: Electronic collection of papers of the Faculty of Civil Engineering. dec2016, Issue 12, p60-67. 8p
Year and place	2016
Summary	
Comment	

Works within Project NATO SFP 983828.

Title of work	REVIEW OF BRIDGES IN BOSNIA AND HERZEGOVINA
The institution where the paper was prepared	Project NATO SFP 983828: Seismic Upgrading of Bridges In South East Europe By Innovative Technologies, NEUM B&H September 12-14, 2013. Proceedings of International Scientific Conference "BASA" 2016, pp. 103-109.
Year and place	NEUM B&H September 12-14, 2013.
Summary	
Comment	
Title of work	SOME EXPERIENCES IN MODELING THE REAL BEHAVIOR OF BRIDGES BASED ON FIELD MEASUREMENTS, Project NATO SFP 983828: Seismic Upgrading of Bridges In South East Europe By Innovative Technologies, NEUM B&H September 12-14, 2013. Proceedings of International Scientific Conference "BASA" 2016, pp. 257-265.
The institution where the paper was prepared	
Year and place	NEUM B&H September 2013.
Summary	
Comment	

Published scientific papers with the title of associate professor

Title of work	Analysis of structural damage level according to EC8
The institution where the paper was prepared	Proceedings of the Sixth International Scientific and Professional Conference "Earthquake Engineering and Engineering Seismology", pp. 465-472.

Year and place	2018, Kraljevo, Serbia
Summary	At the beginning of this century, the performance-based seismic design approach was included in the standards. This paper provides an overview of the performance-based design approach in individual standards. Structural damage classifications for a defined level of seismic hazard are described. An example of defining the level of damage of a reinforced concrete structure of a mixed structural system in accordance with EC8 is presented. Based on the presented overview of the standards and the analyzed example, conclusions are given on the possibilities of applying the presented procedure.
Title of work	Oscillation analysis of bridge structure and soil
The institution where the paper was prepared	14th International Scientific Conference INDIS, Novi Sad, November 2018, Proceedings, p.
Year and place	2018, Novi Sad, Serbia
Summary	As part of the NATO SfP 983828 project, ambient vibration measurements of bridges were carried out. This paper provides a brief overview of ambient vibration measurements of a bridge over the Bosna River and the surrounding soil. The soil parameters were determined by seismic refraction and tomography. Comparative numerical models of bridge and soil oscillations were developed. By comparing numerical and measured values, a comparative analysis of bridge and soil oscillations was carried out from the aspect of possible resonance and the impact on soil-structure interaction.
Comment	
Title of work	<i>Ductility of plastic hinges in beams of reinforced concrete frame structures,</i>
The institution where the paper was prepared	15 International Scientific Conference, Planning, Design, Construction and Building Renewal, Proceedings pp. 498-505
Year and place	Novi Sad 24-26 November 2021
Summary	
Comment	
Title of work	<i>Application of accelerated chloride pressure penetration test (PPT) for modeling the prediction of corrosion processes,</i>
The institution where the paper was prepared	Twelfth International Scientific and Professional Conference, Condition Assessment, Maintenance and Rehabilitation of Buildings, Proceedings pp. 395-406
Year and place	Vrnjačka Banja, June 29-July 1, 2022.
Summary	
Comment	
Title of work	<i>Vibrations of pedestrian bridges,</i>
The institution where the paper was prepared	Twelfth International Scientific and Professional Conference, Condition Assessment, Maintenance and Rehabilitation of Buildings, Proceedings pp. 407-416
Year and place	Vrnjačka Banja, June 29-July 1, 2022.
Summary	
Comment	
Title of work	<i>Damping models in structural analysis,</i>
The institution where the paper was prepared	International Scientific and Professional Conference, Geotechnical Aspects of Civil Engineering and Earthquake Engineering, Proceedings pp. 372-378

Year and place	Vrnjačka Banja, November 1-3, 2023.
	Summary
	Comment
Title of work	<i>Comparative analysis of the dynamic response of a pedestrian bridge for different damping models,</i>
The institution where the paper was prepared	Thirteenth International Scientific and Professional Conference, Condition Assessment, Maintenance and Rehabilitation of Buildings,
Year and place	Vrnjačka Banja, 19.06-21.06.2024.
	Summary
	Comment

Selected publications and presentations

Publication name	Fundamentals of earthquake engineering
Authors	Mirsad Topalović, Damir Zenunović
Publisher, year and place	University of Tuzla, 2017.
Summary	In the introductory chapter of the manuscript, the authors indicated the need for the proposed manuscript in terms of current climate changes, which have led to the frequent occurrence of catastrophic events, including earthquakes, as one of the frequent incident loads with adverse effects (effects) on construction objects. The basics of the safety concept on which the computational analysis of construction structures is based are briefly presented, with special emphasis on the effects of earthquakes. The basic concepts of earthquake phenomenology are explained in terms of its occurrence, the mechanism of transmission of seismic waves, the method of registering earthquakes, and the analysis of seismic hazard and seismic risk in accordance with the latest principles valid in this field. Current research related to the effects of earthquakes and the performance of structural responses is directed towards finding computational models that describe the behavior of load-bearing structural elements and some objects as realistically as possible. In order to predict the most realistic response, it is necessary, first of all, to know the behavior of materials and structural elements to such an effect, which is the subject of the second chapter. The basic parameters of concrete and steel behavior are described, as well as the mechanisms of operation of the concrete and reinforcing steel connection, with special emphasis on behavior under dynamic loading. A brief overview of the mechanisms of "operation", i.e. the behavior of individual structural elements under dynamic loading, is presented, in conjunction with the design of details, including specific structural details. The third chapter discusses the basic principles of methodologically correct design of building structures in seismically active areas, with special emphasis on the requirements set in the current standards applied in the countries of the European Community (set EN 1998). At the end of the chapter, a review is given of the modeling of the interaction of foundations and soil under seismic action, with the aim of formulating adequate calculation models, i.e. models that will correspond to the most realistic behavior of the structure. The introductory part of the fourth chapter provides a brief overview of the theoretical foundations of dynamic structures so that the reader can gain insight into the theoretical foundations necessary for the analyses presented below. This chapter gives a special focus on the problem of structure-foundation-soil interaction, i.e. seismic performance of the foundation soil and the importance of their definition as a key part of the calculation according to EN1998 (EC8) is emphasized, according to which the character of the seismic load is determined. Elastic and design response spectra according to EC8 are presented, as well as the method of their formation. Methods of seismic analysis of structures are described in the fifth chapter. Methods are analyzed from the simplest method of equivalent static lateral forces through modal analysis with response spectra, pushover analysis to the most complex nonlinear analysis in time. Numerical examples are made for the described methods. The sixth chapter describes the approach to the design and execution of frame and mixed structural systems, reinforced concrete (RC) buildings, according to the concept of

programmed behavior. The essence of the programmed behavior method is to design in advance the locations of plastic joints in the structure, which will dissipate seismic energy by their "work" in the nonlinear region, while the other parts of the structure remain in the linear region. It is important that this method is elaborated and illustrated with a numerical example because it has proven to be acceptable, especially for the design and application of frame structures in areas of high seismic risk. Chapters 7 and 8 are an addition to the previously presented material with the task of introducing the reader to the basics of earthquake engineering, through selected chapters elaborated in the proposed manuscript. These two chapters open two very important areas of earthquake engineering, which require separate analysis, namely the treatment of earthquake-damaged buildings and seismic isolation. Thus, Chapter 7 provides a review of the classification of earthquake-damaged buildings and general principles of strengthening, and Chapter 8 provides a brief overview of seismic isolation systems and types of seismic isolators.

Comment

Publication name **Dynamics of constructions - a collection of solved problems with theoretical assumptions**

Authors Mirsad Topalović, Kemal Zahirović

Publisher, year and place OFF-SET Tuzla, 2023.

Summary Structural dynamics is a significant area of structural theory, which addresses the impact of dynamic loads on structures.

A collection of solved problems with theoretical assumptions was created in the hope that it will help students in successfully mastering the material in Structural Dynamics, and to civil engineers as an aid in solving dynamic problems in engineering practice. Due to the extensiveness of the issues, the collection deals only with linear girders and a small part of the vibrations of thin plates, using a simplified method. For understanding and practical application, it is necessary to know the statics of linear girder structures as well as the matrix analysis of linear girders. Through examples of different types of dynamic loads, seismic loading is also treated, as a specific case of dynamic loading on construction. Analysis of such a case of dynamic loading was carried out using linear static and linear dynamic methods. Collection of solved problems with theoretical assumptions from Dynamics
The construction is divided into six chapters and the used literature. Within each chapter, brief theoretical assumptions related to solving numerical examples are given. In some examples, the solution procedure is explained in detail and comments are given.

Comment

Selected projects and presentations

Name The main project of the steel hall - repair workshop Bešin

Authors Ismet Gušić, Mirsad Topalović

Publisher, year and place DOO "FINIŠ" Živinice, 2005

Summary

Comment

Name Main project of a sports hall with accompanying facilities in Srebrenik

Authors Mirsad Topalović, Zijad Požegić

Publisher, year and place INZIO Tuzla, 2006

Summary

Comment

Name Main project of the gas station "Centar" in Tuzla

Authors Mirsad Topalović, Zijad Požegić, Damir Hamustafić, Nedžad Delić

Publisher, year and place	Studio 2003 Tuzla, 2006
Summary	
Comment	
Name	Main project of the Industrial Hall within the FGO Banovići area
Authors	Besim Demirović, Mirsad Topalović
Publisher, year and place	FGO-Banovići, 2006
Summary	
Comment	
Name	The main project of the Museum of Eastern Bosnia in Tuzla (constructive phase)
Authors	Mirsad Topalović, Zijad Požegić, Damir Hamustafić, Nedžad Delić
Publisher, year and place	Studio 2003 Tuzla, 2006
Summary	
Comment	
Name	Super control of the rehabilitation of the TE-Tuzla cooling tower
Authors	Mirsad Topalović, Nesib Rešidbegović
Publisher, year and place	Institute GIT Tuzla, 2007.
Summary	
Comment	
Name	Preliminary design of water supply for a group of settlements on the right side of the Vrbas River in the Municipality of Jajce
Authors	Munir Jahić, Damir Hamustafić, Mirsad Topalović, Zijad Požegić
Publisher, year and place	ECO Vienna, 2007
Summary	
Comment	
Name	Main project of the North Stand of the Tušanj Stadium in Tuzla.
Authors	Damir Hamustafić, Mirsad Topalović, Zijad Požegić
Publisher, year and place	Construction Directorate, Tuzla, 2008
Summary	
Comment	
Name	The main project of the BAROK building in Tuzla
Authors	Damir Hamustafić, Mirsad Topalović, Zijad Požegić
Publisher, year and place	Portal-Art, Živinice 2008.
Summary	
Comment	
Name	Supplementary mining project "Transport of tailings and separations by railway wagons to Bešin on PK Turija" - construction part
Authors	Ismet Gušić, Mirsad Topalović
Publisher, year and place	DOO "FINIŠ" Živinice, 2009
Summary	

Comment	
Name	The main project Water Tower V=500m ³ , Odžak
Authors	Besim Demirović, Mirsad Topalović, Zijad Požegić
Publisher, year and place	LLC "CUBUS" Lukavac, 2009
Summary	
Comment	
Name	Rehabilitation of part of the damaged control gallery at the "Snježnica" dam, supervision
Authors	Damir Zenunović, Mirsad Topalović
Publisher, year and place	University of Tuzla, RGGF, 2010
Summary	
Comment	
Name	Most Čelić-Republika Srpska
Authors	Besim Demirović, Mirsad Topalović
Publisher, year and place	AIK-ENGINEERING Banovići, 2010
Summary	Technical documentation for building construction.
Comment	
Name	Feasibility Study of the Tuzla _ Orašje Motorway (Feasibility Study, Preliminary Design and Environmental Impact Study)
Authors	Consortium: RGGF Tuzla, Lineal Maribor, Gradis Maribor and IRGO Ljubljana, Designer in the work group Book M and Book G, Associate in the organization team
Publisher, year and place	RGGF, 2011/12.
Summary	
Comment	
Name	Modernization of the Tuzla TPP transport system
Authors	Damir Zenunović, Mirsad Topalović
Publisher, year and place	NNM TUZLA, 2011
Summary	Technical documentation for building construction.
Comment	
Name	ELABORATE on the test load testing of the overpass over the northern city road in Trnovac Street, Tuzla
Authors	Damir Zenunović, Mirsad Topalović
Publisher, year and place	INPROZ-Institute for Protection and Design Ltd. Tuzla, 2013
Summary	
Comment	
Name	ELABORATE on the test load testing of the supporting structure of the North Stand of the "Tušanj" Stadium, Tuzla
Authors	Damir Zenunović, Mirsad Topalović
Publisher, year and place	INPROZ-Institute for Protection and Design Ltd. Tuzla, 2014
Summary	

Comment	
Name	STUDY "Possibilities of producing pellets from dolomite powder"
Authors	Nedžad Alić, Mirsad Topalović
Publisher, year and place	University of Tuzla, RGGF Tuzla, 2015
Summary	
Comment	
Name	Elaboration of the energy efficiency of the RGGF Tuzla building
Authors	Mirsad Topalovic
Publisher, year and place	University of Tuzla – RGGF Tuzla, 2016
Summary	
Comment	
Name	Residential and tourist facilities in Neum, supervision
Authors	Mirsad Topalovic
Publisher, year and place	MMF Tuzla International doo Tuzla, 2021
Summary	
Comment	
Name	BUSINESS FACILITY–SALT SQUARE T TUZLA
Authors	Mirsad Topalovic

Recognitions and awards

Name	- Silver plaque 2003, 2004
Institution	University of Tuzla
Reason (reason)	University Day
Short description	All exams passed within the deadline with an average grade of 9.38 in the fourth year of study; fifth year 9.67
Comment	

Membership in professional associations

Name of the association	-
Brief description of the association	
Association address / web reference	
Position in the association	
Comment	

Participation in the teaching process

In the title of assistant / senior assistant	As an assistant: Massive bridges, Elements of building construction I and II, Building materials I and II, Stability and dynamics of structures, undergraduate study 2004-2008. As a senior assistant: Bridges I and II, Elements of Building Construction I and II, Building Materials I and II, Stability and Dynamics of Structures, undergraduate study 2008-2012.
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As an assistant professor	Stability and dynamics of structures, Bridges, Elements of building construction, Seismic design, Design of buildings University of Tuzla, undergraduate study from 20012.-2017. Bridges II, Earthquake Engineering, RGGF, University of Tuzla, master's degree, academic year 2013/2014.
With the title of associate professor	Stability and dynamics of structures, Bridges, Elements of building construction, Seismic design, Design of buildings University of Tuzla, undergraduate study since 20017. Bridges II, Earthquake Engineering, RGGF, University of Tuzla, master's degree.

Mentoring in the preparation of master's and doctoral theses

Graduation theses	<p>Comparative analysis of an arch bridge according to EN and applicable regulations , Diploma thesis, Emil Mujakić, University of Tuzla, RGGF Tuzla, Tuzla, June 2013. RGGF ,</p> <p>Building glass, area of application, theory and practice , Graduation thesis, Fikret Kamenjaković, University of Tuzla, RGGF Tuzla, Tuzla, June 2013.</p> <p>Seismic insulation of buildings, Graduation thesis, Osman Kadrić, University of Tuzla, RGGF Tuzla, Tuzla, January 2014 .</p> <p>Box cross-sections of bridge structures , Diploma thesis, Emina Smajlović, University of Tuzla, RGGF Tuzla, Tuzla, February 2014.</p>
Master's theses	<p>Nonlinear Dynamic Analysis in Time (Time history) , candidate Kemal Zahirović, Master's thesis defended on May 3, 2017.</p> <p>SEISMIC INSULATION OF STRUCTURES USING MASS DAMPING , candidate Dina Avdić, Final master's thesis defended on December 5, 2019.</p> <p>SEISMIC ANALYSIS OF THE EXISTING RESIDENTIAL-BUSINESS BUILDING B10 IN TUZLA, candidate Mario Mijatović, Final master's thesis defended on 26.05.2022.</p> <p>Seismic analysis of the existing residential and commercial building Block "B" within the spatial unit "Pecara 2" - lamella 3 in Tuzla , candidate Monja Šahbegović, Final master's thesis defended on 04.06.2025.</p>

Research projects and studies

Completed projects

International scientific project NATO SFP project "Seismic Upgrading of Bridges in South-East Europe by Inventive Technologies" , Visoki risk from earthquake in Southeast Europe may have a special consequence on infrastructure objects as are bridges high (most) older from 40-50 years old) which represents an important common security problem which requires development and use efficient measures for reduction risks how would protected yours citizens , in new property , transport and security .

Main goal proposed research and total NATO SFP project are : (1) development (creation) of the new high efficient system seismic insulation bridges (ML - GOSEB - System) , na basis innovative concepts integrations multiple seismic dissipation energy and globally optimized balance seismic energy . In addition to of that , a few very important goals project are the following : (2) mobilization scientific potential in region for advanced solution complex problems security there are some bridges ; (3) Cross -border access cooperation and regional projects ; (4) Promotion applications advanced technology for seismic for protection bridges ; (5) Reduction necessary financial (6) Harmonization of funds achieved levels security , (7) Success application European standards ; (8) Provision own innovative scientific contributions for seismic insulation bridges ; (9) Motivation ultimate user according to application innovative technology ; (10) Provision general incentives scientific employee and researcher development and application advanced technology through successful international cooperation .

The project lasted from February 2009 to December 2013. The project was completed in December 2013.

Ongoing projects

Interreg VI-A IPA Program Croatia-Bosnia and Montenegro

Planned projects
(expected, in preparation)

Personal skills and competencies

Native language

Bosnian

Other languages

English language

German language

Understanding		Speech		Writing
Listening	Reading	Voice interaction	Speech	

Very good	Very good	Good	Good	Good
Very good	Very good	Very good	Good	Good

Scientific, professional and social competences

Competencies for conducting scientific research and teaching in higher education

Since 2004, assistant and teacher in the following subjects: Bridges, Stability and Dynamics of Structures, Elements of Building Construction, Seismic Design, Design of Buildings, in the first cycle of studies, and Bridges II and Earthquake Engineering in the second cycle of studies, at the RGGF, University of Tuzla,

Participated in four (3) scientific research projects that were successfully implemented.

I am currently participating in one (1) scientific research project.

34 scientific papers published in the field of building structures. Of these, five (3) papers in journals with an impact factor (Scopus search engine).

Scientific and research interest (occupation) and current training

Seismic analysis of reinforced concrete structures, Bridge Vibrations, Measurement of ambient vibrations, Foundation-soil interaction, structural damage due to vibrations.

Planned training

Determining the dynamic characteristics of structures by measuring ambient vibrations.

Social skills and competences

Organizational skills and competencies

Technical skills and competencies

Technical letter and technical drawing, creation of the graphic part of technical documentation in the field of construction, creation of models of building constructions

Computer skills and competencies

Excellent knowledge of MS Office, AUTO CAD, Tower, SAP2000, Etabs, CSI Bridge, IdeaStatica

Artistic skills and competencies

Other skills and competencies

Other information

Reviewer of published textbooks:

I am a reviewer of a university textbook by Dr. Besim Demirović, assistant professor, entitled "**Structural Statics I - Solid Beams in Planes**", published in 2017.

Work in scientific committees:

3rd International Scientific Meeting E-GTZ 2016, Tuzla, 2016.