

Komisija za izbor nastavnika u zvanje docenta:

- Dr. Armin Teskeredžić - Mašinski fakultet Sarajevo
Vanredni profesor
Naučna oblast: „Energetika i KGH tehnika“
- Dr. Haris Lulić - Mašinski fakultet Sarajevo
Docent
Naučna oblast: „Energetika i KGH tehnika“
- Dr. Džana Kadrić - Mašinski fakultet Sarajevo
Docent
Naučna oblast: „Energetika i KGH tehnika“

VIJEĆU MAŠINSKOG FAKULTETA U SARAJEVU

Rješenjem Vijeća Mašinskog fakulteta u Sarajevu broj 06-VL-3984/19 od 12.09.2019. godine imenovana je Komisija za Izbor nastavnika u zvanju docenta za predmet: Termalni komfor i unutrašnja klima:

- Dr. Armin Teskeredžić - Mašinski fakultet Sarajevo
Vanredni profesor
Naučna oblast: „Energetika i KGH tehnika“
- Dr. Haris Lulić - Mašinski fakultet Sarajevo
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- Dr. Džana Kadrić - Mašinski fakultet Sarajevo
Docent
Naučna oblast: „Energetika i KGH tehnika“

Na javni konkurs objavljen dana 03.07.2019. godine u dnevnom listu „Dnevni avaz“ u Sarajevu i na web stranici fakulteta www.mef.unsa.ba prijavio se jedan kandidat i to:

Dr. sc. Sandra Martinović, dia

Priložena dokumentacija:

1. Biografija sa bibliografijom,
2. Ovjereni kopiji diplome o sticanju VSS na Arhitektonskom fakultetu u Sarajevu i ovjerena kopija Odluke broj 06-VL-2447/19 od 31.05.2019. o usvajanju Izvještaja Komisije o toku

i rezultatu odbrane doktorske disertacije kandidata Mr. Sandre Martinović pod naslovom „Izrada metodologije za troškovno – optimalna rješenja projekata energetske efikasnosti na pojedinačnim, te tipiziranim objektima po TABULA konceptu“ obavljene 20.05.2019. na Mašinskom fakultetu u Sarajevu,

3. Kopija rješenja o izboru u zvanje Višeg asistenta na Mašinskom fakultetu u Sarajevu,
4. Naučno – stručni radovi, navedeni u bibliografiji, objavljeni u časopisima/konferencijama koje prate relevantne međunarodne baze podataka sa ispisom baza podataka u koje su uvršteni časopisi/konferencije,
5. Priručnik,
6. Ostala dokumentacija (potvrde i certifikati o usavršavanju i pohađanju kurseva i seminara).

Nakon uvida u priloženu dokumentaciju koju je podnio prijavljeni kandidat Komisija podnosi sljedeći

IZVJEŠTAJ

1. OPŠTI PODACI

Ime i prezime:	Sandra Martinović
Stečeni akademski stepeni:	Doktor tehničkih nauka/znanosti iz oblasti mašinstva, 2019., Univerzitet u Sarajevu, Mašinski fakultet Sarajevo Diplomirani inženjer arhitekture, 2009., Univerzitet u Sarajevu, Arhitektonski fakultet Sarajevo
Zvanje u koje se kandidat bira:	Docent
Predmet na koje se kandidat bira:	Termalni komfor i unutrašnja klima

2. BIOGRAFSKI PODACI

Ime (ime roditelja) i prezime:	Sandra (Berislav) Martinović
Naučni stepen:	Doktor tehničkih nauka/znanosti iz oblasti mašinstva
Adresa (prebivalište/firma):	Bolnička 9 71000 Sarajevo Bosna i Hercegovina Univrzitet u Sarajevu Mašinski fakultet Vilsonovo šetalište 9 71000 Sarajevo Bosna i Hercegovina www.mef.unsa.ba
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Državljanstvo: Bosna i Hercegovina
Datum rođenja: 09.10.1979.
Mjesto i opština rođenja: Sarajevo, Centar, Bosna i Hercegovina

3. RADNO ISKUSTVO

Godina/period (od – do): 2009 – sada
Zanimanje i radno mjesto: Doktor tehničkih nauka/znanosti iz oblasti mašinstva
Asistent i Viši asistent, Katedra za primarnu i finalnu obradu drvetu
Poslodavac: Mašinski fakultet Sarajevo
Vilsonovo šetalište 9
71000 Sarajevo
Bosna i Hercegovina
Radno/pedagoško iskustvo: 9 godina u zvanju asistenta i višeg asistenta na predmetima:
Metodologija industrijskog oblikovanja, Savremene metode dizajniranja, Drvo u građevinarstvu, Održivo korištenje energije i Elastostatika
Član tima za energetske preglede i energetske certificiranje stambenih i nestambenih zgrada

4. OBRAZOVANJE

Maj 2019. Doktor tehničkih nauka/znanosti iz oblasti mašinstva, Mašinski fakultet Sarajevo, 2019., doktorska disertacija: „Izrada metodologije za troškovno – optimalna rješenja projekata energetske efikasnosti na pojedinačnim, te tipiziranim objektima po TABULA konceptu“, Doktorski studij: „Obnovljivi izvori energije i okolinske tehnologije“
Juni 2009. Diplomirani inženjer arhitekture, Arhitektonski fakultet Sarajevo, 2009., Diplomski rad: „Idejni projekat poslovno – trgovačkog centra“

5. SEMINARI I STRUČNO USAVRŠAVANJE

- Ljetna škola talijanskog jezika na Collegio De Filippi u Vareseu, 1997.,
- Toefl, Niagara Catholic, 2001. (boravak u Kanadi i SAD-u 2 godine),
- Modul 1 – Program osposobljavanja za lica koja vrše energetske certificiranje objekata, Ceteor, Sarajevo, 2011.,
- Projektovanje i eksploatacija termotehničkih sistema u zgradarstvu, Mašinski fakultet Sarajevo, 2012.,

- Upravljanje potrošnjom energije u zgradarstvu i praksa zelenog ureda, USAID – 3E, Sarajevo, 2012.,
- Modul 3 - Program usavršavanja za lica koja vrše energetska certificiranja objekata, Ceteor, Sarajevo, 2012. i Mašinski fakultet Sarajevo 2017.,
- Energijska efikasnost u građevinarstvu – novi izvor konkurentske prednosti, Ceteor, Sarajevo, 2013.,
- Trening za rad u software-u za proračun energetskih karakteristika zgrade i energetsko certificiranje iSBEM, FMPU, Sarajevo, 2016.

6. RAD NA RAČUNARU

MS Office, AutoCAD, Phoo Shop, Catia, SketchUp, EnergyPlus, TABULA, Isbem

7. JEZICI

Nivo znanja:	Govor	Čitanje	Pisanje
Engleski	5	5	5
Njemački	2	4	3
Talijanski	2	5	4

8. BIBLIOGRAFIJA (Objavljeni naučno-stručni radovi sa abstraktom i priručnik):

8.1. Objavljeni naučno-stručni radovi

1. Hajdarevic, S., Obucina, M., Mesic, E., **Martinovic, S.**: Stress and Strain Analysis of Plywood Seat Shell, *Drvena industrija* 70 (1), 51 -59, 2019.

Abstract: In this paper, the stress and strain analysis of common laminated wood seat shell is performed. Experimental stiffness evaluation is conducted by measuring displacement of the point on the backrest, and experimental stress analysis is carried out by tensometric measuring at the critical transition area from the seat to the backrest. Finite element analysis is carried out layer by layer with a “2D linear elastic model” for orthotropic materials. Good matching is found between numerical and experimental results of displacement. It is also shown that the results of the principal stress in the measurement points of the seat shell compare favourably with experimental data. The applied in-plane stress analysis of each individual veneer is not applicable for interlaminar stress calculations that are a significant factor in curved forms of laminated wood. Curved forms of laminated wood products require more complex numerical analysis, but the method can be used to achieve approximate data in early phase of product design.

Link: <http://drvnaindustrija.sumfak.hr>

Baza podataka: CA search, CAB Abstracts, Compendex, DOAJ, EBSCO, Forestry abstracts, Forest products abstracts, Geobase, Paperchem, SCI-Expanded, SCOPUS

2. Hajdarevic, S., Obucina, M., Mesic, E., **Martinovic, S.:** Stress and Strain of the Frontal parallel Joints with 3D Printed Connectors, 29TH DAAAM International Symposium On Intelligent Manufacturing And Automation, Vienna, 2018.

Abstract: In this paper, the stress and strain analysis of the frontal parallel joints with two different 3D printed connectors is performed. The connectors were made of PLA material and were bonded to wooden parts (spruce) with a one component polyurethane adhesive. The test was carried out to determine mechanical properties of the joints at the point of failure and proportional limit. Analytical calculations were used to determine: the effective modulus of elasticity of the joints, the normal stress of joint parts and the deflections at two directions. Numerical stress and strain analyses were performed with finite method software. The results show that the ratio between the effective modulus of elasticity of joint and the modulus of elasticity of spruce wood is 0,71 for connector without inner wall and 0,61 for connector with inner wall. The ratio between the appropriate values of the stress and deflection at the point of failure for connector with and without inner wall is approximately 0,80 and also between the appropriate values of the stress and deflection at the point of proportional limit is 0,90. The results also indicate that the analytical and numerical calculations gave reasonable estimates of mechanical behavior of the joints.

Link: <https://daaam.info/daaam-proceedings/>

Baza podataka: SCOPUS, EBSCO

3. Hajdarevic, S., **Martinovic, S.:** The Effect Of Dowel Spacing On The Stress And Strain Of Case-Type Furniture Corner Joint, 26TH DAAAM International Symposium On Intelligent Manufacturing And Automation, Vienna, 2016.

Abstract: This paper presents stress and strain analysis of double-dowel case-type furniture corner joint. Numerical calculations are carried out with a linear elastic model for orthotropic material. The mathematical model is solved by a finite element method. The von Mises stress and displacement are calculated for the simple state of load of MDF board structure. Three dowel spacing are used in order to evaluate the effect of the distance between the centers of dowel holes. The results show that the dowel spacing and the distance between the dowel and the board edge have a considerable impact on the stress state of the face and edge member. Stress patterns obtained in planes of boards show that stress is increased in the areas of fracture zones that occur during the fracture moment tests of dowel joints. Results of the displacement calculation indicate that joint becomes stiffer when the distances between the dowels and the dowel and the board edge are rationally defined.

Link: <https://daaam.info/daaam-proceedings/>

Baza podataka: SCOPUS, EBSCO

4. **Martinovic, S.**, Muhamedagic, R., Husika, A.: Possibilities for achieving the vision of near net zero emission in building sector in Bosnia and Herzegovina, *American Journal of Environmental Protection*, 3 (5), 217 -224, 2014.

Abstract: Increase of greenhouse gases concentration in the atmosphere, mainly carbon dioxide, which leads to global warming, indicates the need to take actions to reduce use of energy from carbon sources. The building sector is the largest consumer of energy, and thereby the largest emitter of greenhouse gases. In this paper the possibilities of achieving "near net zero emission" vision, in the residential sector, by the year 2050, were analysed. The necessary policies and technical energy efficiency measures were analysed, that could be applied in the building sector in Bosnia and Herzegovina by 2050. Large amount of energy is used for space heating and hot water, mainly from fossil fuels, which significantly contributes to air pollution and global warming. Specific energy consumption for space heating in Bosnia and Herzegovina is several times higher than in EU countries with the similar climate conditions. Therefore, it is necessary to reduce energy consumption significantly, ie to increase energy efficiency. It is also necessary to deploy the potential of renewable energy use in buildings and to use buildings as energy producers. In this way, in the long term, energy costs in buildings would be significantly reduced, as well as dependence on energy imports and the need for building of new capacities for energy generation. From other side, employment would be increased while emissions of pollutants and greenhouse gases would be reduced. In this paper, due to the availability of reliable data on energy consumption for the Sarajevo Canton, the necessary policies and measures to promote energy efficiency were analysed, that could be applied in the residential sector in the Sarajevo Canton.

Link:

<http://www.sciencepublishinggroup.com/journal/paperinfo?journalid=163&paperId=10002445>

Baza podataka: OCLC WorldCat, CrossRef, JournalSeek, CiteSeerX, DOAJ, ZDB, journalseeker ResearchBib, MIAR, Directory of Journals Indexing, CNKI SCHOLAR

5. Hajdarevic, S., **Martinovic, S.**: Stretcher as a Design Variable and the Effect on the Behavior of Statically Indeterminate Furniture Structure, 3rd International Scientific Conference on Engineering, Manufacturing and Advanced Technologies, MAT 2014, Mostar, 73 – 76, 2014.

Abstract: This paper presents an example of fast strength analysis statically indeterminate chair side frame. Calculations of cross section forces are carried out by force method. The size of cross section of stretcher and the position of stretcher are adopted as the design variable. The sizes of all other frame elements are kept constant while the joints are assumed as ideally rigid. For the frequently used type of loading of structure, the estimated cross section forces acting on the critical side rail to back post joint are presented. Bending force increases, axial force decreases and shear force remains nearly constant as the position of stretcher is lowered. Bending force and shear force increases while axial force remains nearly constant as the stretcher cross section moment of inertia is reduced. Finally, the impact of the change of

bending moment applied to the joint on the size of depth and length of the tenon are determined by empirically derived expression based on the ultimate bending strength of mortise and tenon joint. Simplified forms of designing presented in this paper allow selection of optimal size and position of stretcher in wood frame structures.

Link: <https://www.docdroid.net/uyDJUsn/mat2014-conference.pdf#page=6>

6. Hajdarevic, S., **Martinovic, S.**: Effect of Tenon Length on Flexibility of Mortise and Tenon Joint, 24th DAAAM International Symposium on Intelligent Manufacturing and Automation, Vienna, 2013., Procedia Engineering 69, 678 – 685, 2014.

Abstract: This paper presents numerical analysis of the effects of tenon length on flexibility of mortise and tenon joints. Numerical calculations are carried out with a linear elastic model for orthotropic material. The mathematical model is solved by a finite element method. The results of the calculation indicate that a mortise and tenon joint becomes stiffer as tenon length increases. A satisfactory agreement was found between the experimental data taken from literature and the obtained results, thus confirming the conclusions made. Rotation stiffness was determined and also used in the structural analysis of a simple furniture frame. The results revealed that stiffness of joints in a frame had a considerable impact on the structure deflection.

Link: <https://daaam.info/daaam-proceedings/>

Baza podataka: SCOPUS, EBSCO

7. Muhamedagic R., **Martinovic, S.**, Kotur, M.: Tehno-ekonomska analiza zahvata na objektu u svrhu poboljšanja njegovog energetskog razreda, Naučno-stručni simpozijum Energetska efikasnost – ENEF 2013, ISBN 978-99955-46-18-2, Banja Luka, 2013.

Abstract: U radu je izvršena procjena smanjenja potreba za energijom porodične kuće primjenom različitih mjera u cilju poboljšanja energetske efikasnosti. Takođe, izvršena je i tehno-ekonomska analiza sa ciljem utvrđivanja isplativosti ulaganja u određenu mjeru za poboljšanje energetske efikasnosti. Razmatrani su efekti svake primjenjene mjere pojedinačno, a zatim i osjetljivost perioda povrata investicije u zavisnosti od vrste korištenog energenta za zagrijavanje objekta.

Link: http://enef.etfbl.net/2013/resources/Zbornik_2013/10_Rad.pdf

8. Muhamedagic R., **Martinovic, S.**, Lulic, H.: Global Warming and Outdoor Design Temperature, 17th International Research/Expert Conference "Trends in the Development of Machinery and Associated Technology" TMT 2013, Istanbul, Turkey, 2013.

Abstract: Global temperature increase on Earth, due to climate change, indicates the need for a data revision pertaining to outdoor design temperature and number of degree – days. In this paper, based on the relevant data pertaining to temperature measurements in Sarajevo for a

period of ten years (since 2001 to 2010), new outdoor design temperature - 13°C is defined, instead of applicable temperature -18°C and number of degree days 2381°C-ann, instead of applicable 3077°C-ann. The results of calculation show that requirement for thermal energy is 22% less for outdoor design temperature of -13°C. Therefore, there is the need for data revision pertaining to outdoor design temperature and number of degree – days, which could lead to a correction in the heating systems. As a consequence, atmospheric CO₂ emission will be less in the building sector, which can play a key role in combating climate change.

Link: <http://www.tmt.unze.ba/proceedings2013.php>

Link:

<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.403.3716&rep=rep1&type=pdf>

Baza podataka: CiteSeerX, EBSCO

9. Hajdarevic, S., **Martinovic, S.**: Effect of Tenon Depth on Flexibility of Mortise and Tenon Joint, 17th International Research/Expert Conference "Trends in the Development of Machinery and Associated Technology" TMT 2013, Istanbul, Turkey, 2013.

Abstract: This paper presents numerical analysis of the effects of tenon depth on flexibility of mortise and tenon joints. Numerical calculations are carried out with a linear elastic model for orthotropic material. Mathematical model is solved by finite element method. The results of the calculation indicate that a mortise and tenon joint becomes stiffer as tenon depth is increased. A satisfactory agreement was found between the experimental data taken from literature and obtained results, thus confirming the conclusions that were made.

Link: <http://www.tmt.unze.ba/proceedings2013.php>

Baza podataka: CiteSeerX, EBSCO

10. Horman, I., Hajdarevic, S., Vukas, N., **Martinovic, S.**, Šorn, Š.: Effect of Stretcher Position on Strength and Stiffness of the Chair Side Frame, TTEM, 7(2), 493 – 499, 2012.

Abstract: This paper presents the analysis of stiffness and strength of chair side frame that is carried out by analytical and numerical method. The force method is used in analytical consideration of the problem. In numerical analysis, the equations for momentum balance are discretized by the finite volume technique. The accuracy of the analytical method is confirmed by comparing the calculated results with data numerically obtained. The results have showed that the stiffness and strength of the chairs side frame are affected by the position and geometric characteristics of stretcher cross section, which allows selection of its optimal size and position.

Link:

https://www.researchgate.net/publication/290525765_Effect_of_stretcher_position_on_strength_and_stiffness_of_the_chair_side_frame

Baza podataka: EBSCO, ISI Web of Knowledge

11. Cengic, M., **Martinovic, S.**: Analysis of Measures for Energy Efficiency Enhancement in Building Design and Construction, TTEM, 6(3), 572 – 578, 2011.

Abstract: The biggest energy consumer in Bosnia and Herzegovina is the building design and construction sector, where significant saving potentials lie. This paper discusses possible measures for the enhancement of energy efficiency. An optimal solution for the enhancement of energy efficiency can only be achieved through technological and economic compromise.

Link: http://pdf.ttem.ba/ttem_6_3_web.pdf#page=20

Baza podataka: EBSCO, ISI Web of Knowledge

12. **Martinovic, S.**, Muhamedagic, R.: Analiza potreba za uspostavljanjem nove vrijednosti spoljne projektne temperature, III savjetovanje o energetici u BiH sa međunarodnim učesćem, Neum, 2011.

Abstract: U radu je izvršena analiza ukupnog toplotnog opterećenja za trenutno važeću spoljnuprojektnu temperaturu za Sarajevo (-18°C) i proračun ukupnog toplotnog opterećenja za spoljnu projektnu temperaturu, određenu na osnovu podataka dobijenih iz baze i arhive Federalnog hidrometeorološkog zavoda BiH Sarajevo o vrijednostima temperatura zraka za period od 2001 do 2010 godine. Kao rezultat je dobijena procjena smanjenja ukupnih potreba za toplotnom energijom za grijanje za Sarajevo u periodu od 10 godina.

13. Horman, I., Hajdarevic, S., **Martinovic, S.**, Vukas, N.: Numerical Analysis of Stress and Strain in a Wooden Chair, Drvna industrija, 61(3), 151-158, 2010.

Abstract: This paper presents numerical analysis of stress and strain conditions of a three-dimensional furniture skeleton construction and its joints. The finite volume method is used in the calculation. Orthotropy of the wood material is accounted for by approximating it with an isotropic material whose elastic modulus and Poisson's ratio are calculated by employing the least-square method. The displacement of the edge point for the loaded joint was also determined experimentally. The agreement of results of the calculation and experimental data can be considered satisfactory. The numerical results presented in this paper also provided an opportunity for identification of the region with the largest load and strain in the complex chair skeleton construction, which is one of the most complex pieces of furniture.

Link:

https://www.researchgate.net/publication/46401407_Numerical_Analysis_of_Stress_and_Strain_in_a_Wooden_Chair

Baza podataka: CA search, CAB Abstracts, Compendex, DOAJ, EBSCO, Forestry abstracts, Forest products abstracts, Geobase, Paperchem, SCI-Expanded, SCOPUS

14. Knezevic A., **Martinovic, S.**: Taksonomic and Terminologic Inovation of Terms Related to Energy Efficiency, Second Regional Conference Industrial Energy and Environmental Protection in South-East Europe, Zlatibor, Serbia, 2010.

Abstract: An increase in energy efficiency is certainly the best way for climate changes mitigation. The investments in energy efficiency are more payable than the investments in building new plants. In a life cycle of a product and services, investments in energy efficiency have even less carbon print, than renewable energy sources. All the facts point to the necessity to increase energy efficiency. But many energy efficient improvements do not reduce greenhouse gasses emission, and the greenhouse effect still grows. The main goal of this paper is to show, through certain analysis, where should be taken action in order to reduce greenhouse gasses emission, by increasing energy efficiency. In that case, it should be necessary to suggest different classification of energy efficiency notions and introduce some new terms.

Link: <http://www.cetor.ba/bs/download>

15. **Martinovic, S.**, Knezevic A.: Rebound Effect as a Measure of Energy Efficiency, TTEM, 5(3), 444-449, 2010.

Abstract: In this paper, the influence of rebound effect in a process of implementation measures for energy consumption reduction is considered. Intuively it seems obvious that increasing energy efficiency will ultimately reduce demand for energy resources, and therefore will reduce energy consumption and greenhouse gasses emission. However, the practice shows that the real savings in energy consumption are far less than expected. The main reason for that lies in the appearance of rebound effect. In this paper, the rebound effect is defined, its importance through exemplary cases is shown, and possible solutions for this problem are suggested.

Link: <https://scholar.google.com/citations?user=3Mdqm3MAAAJ&hl=en>

Baza podataka: EBSCO, ISI Web of Knowledge

16. Horman, I., Hajdarevic, S., **Martinovic, S.**, Vukas, N.: Stiffness and strenght analysis of corner joint, TTEM 5(1), 48-53, 2010.

Abstract: In this paper is presented computational analysis of the stiffness and strength of woden corner joints. The equations for momentum balance are discretized by the finite volume technique. An accuracy of method was verified by comparing numerical results with experimental data. The results show that the size and position of the clearance are making an influence on the stiffnes and strenght, wich provides an opportunity for selection of optimized size and geometric shape of that joint.

Link:

https://www.researchgate.net/publication/290780712_Stiffness_and_strength_analysis_of_corner_joint

Baza podataka: EBSCO, ISI Web of Knowledge

8.2. Objavljeni priručnik:

1. Prašović, S., **Martinovic, S.**, Husika, A., Knežević, A.: Energetska efikasnost i održivi razvoj, poglavlje u Priručniku za poboljšanje energetske efikasnosti i racionalnu upotrebu energije u industriji, MEEIS, SIEEN, CETEOR, Beograd, 2009.

8.3. Projekti, stručni radovi, studije:

- Projekat energetske efikasnosti, zapadni objekat Mašinskog fakulteta Sarajevo - ranije i sada, Open Days of Sarajevo Energy, USAID – 3E, Sarajevo, 2012.
- Projekat HERD, Sarajevo 2012. – 2013.
- Studija Alternativni sistemi za snadbijevanje energijom u FBiH i RS, GIZ, 2017. - 2018. godina
- Energetski pregledi i energetske certifikacije stambenih i nestambenih zgrada sa jednostavnim i složenim termotehničkim sistemima, ukupno za više od 200.000 m² neto grijane površine
- „Conservation Plan History Museum Bosnia and Herzegovina“, CHWB, GETTY, Sarajevo, 2018., 2019.
- „Development Education Centre for Contemporary Furniture Design and Manufacture Technologies“, USAID, Sarajevo 2019. – 2020.

9. ZAKLJUČAK

Na osnovu materijala izloženog u ovom Izvještaju, Komisija je utvrdila da su se aktivnosti kandidatkinje Dr. sc. Sandre Martinović odvijale u dva područja istraživanja. Objavljeni radovi, naučni i stručni, koji ukazuju da je Kandidatkinja meritorna da drži nastavu iz predmeta Termalni komfor i unutrašnja klima su radovi pod brojevima: 4, 7, 8, 11, 12, 14 i 15, od kojih se četiri rada nalaze u relevantnim bazama podataka, a to su radovi pod brojem: 4, 8, 11 i 15. Doktorska disertacija je iz multidisciplinarnog područja i značajnim dijelom se odnosi na problematiku koja se obrađuje u predmetu Termalni komfor i unutrašnja klima. Radeći kao asistent pokazala je da posjeduje potrebne nastavničke sposobnosti.

Na kraju, Komisija konstatuje da kandidatkinja Dr. sc. Sandra Martinović, dia ispunjava sve uslove propisane Zakonom o visokom obrazovanju i Statutom Univerziteta u Sarajevu, te predlaže Vijeću Mašinskog fakulteta u Sarajevu da se

Dr. sc. Sandra Martinović, dia

izabere u zvanje **docenta** na predmet: **Termalni komfor i unutrašnja klima**

Sarajevo, 17.09.2019.

Prof. dr. Armin Teskeredžić

Doc. dr. Haris Lulić

Doc. dr. Džana Kadrić
