



Komisija za izbor nastavnika u zvanje redovni profesor:

- Red. prof. dr. Ejub Džaferović - Univerzitet u Sarajevu, Mašinski fakultet
- Red. prof. dr. Dražena Gašpar - Sveučilište u Mostaru, Ekonomski fakultet
- Red. prof. dr. Dragi Tiro - Univerzitet 'Džemal Bijedić', Mašinski fakultet

VIJEĆU MAŠINSKOG FAKULTETA U SARAJEVU

Rješenjem Vijeća Mašinskog fakulteta u Sarajevu broj 06-VL-631/20 od 12.02.2020. godine imenovana je Komisija za izbor nastavnika (redovni profesor) za naučnu oblast Računarsko inženjerstvo u mašinstvu u sastavu:

Red. prof. dr. Ejub Džaferović redovni profesor
Univerzitet u Sarajevu
Mašinski fakultet Sarajevo
naučna oblast Procesno, energetska i okolinska
inženjerstvo

Red. prof. dr. Dražena Gašpar redovni profesor
Sveučilište u Mostaru
Ekonomski fakultet
naučna oblast Informacione tehnologije

Red. prof. dr. Dragi Tiro redovni profesor
Univerzitet 'Džemal Bijedić' Mostar
Mašinski fakultet
naučna oblast Informacione tehnologije

Na Javni konkurs za izbor akademskog osoblja u naučnonastavna zvanja na Mašinskom fakultetu Univerziteta u Sarajevu: Izbor člana akademskog osoblja - nastavnik u zvanje redovni profesor za naučnu Računarsko inženjerstvo u mašinstvu - jedan izvršioc (puno radno vrijeme), a koji je objavljen na web stranici Mašinskog fakulteta Univerziteta u Sarajevu (www.mef.unsa.ba) dana 10.01.2020. godine prijavio se jedan kandidat i to je van. prof. dr. Senad (Asim) Burak.

Kandidat je predao sljedeću dokumentaciju:

1. Biografiju,
2. Ovjerene kopije diploma dodiplomskog studija i doktoratehničkih nauka iz odgovarajuće oblasti,

3. Izjavu o vremenu provedenom u izbornom periodu vanredni profesor, kopija Odluke Senata Univerziteta u Sarajevu o izboru u zvanje docenta, broj 01-1120/15 od 25.02.2017.
4. Objavljene knjige sa CIP zapisom izdatim od strane Nacionalne i univerzitetske biblioteke Bosne i Hercegovine,
5. Spisak naučnih radova iz uže naučne oblasti objavljenih nakon posljednjeg izbora i to:
 - u publikacijama koje prate citatne međunarodne baze podataka (13 radova), sa izvodima/dokazima o objavljenim radovima (ispis iz citatne baze) sa pregledom časopisa i zbornika radova u kojima su objavljeni (sažeci i kompletni radovi sa naznakom punog naziva rada i datuma objavljivanja),
 - ostale značajne publikacije sa bitnim informacijama o radu,
6. Spisak projekata i originalnih naučnih metoda iz oblasti Informacionih tehnologija i programiranje složenih informacionih sistema i aplikacija sa izvodima/dokazima o institucijama u kojima su implementirana navedena informatička rješenja,
7. Izjavu o realiziranim naučnoistraživačkim i stručnim projektima

Nakon uvida u priloženu dokumentaciju koju je podnijela prijavljena kandidatkinja, Komisija podnosi sljedeći

IZVJEŠTAJ

1. OPŠTI PODACI

| | |
|---|---|
| Ime i prezime: | Senad Burak |
| Katedra na koju se bira: | Katedra za matematiku i fiziku |
| Stečeni akademski stepeni: | 1997. Doktor tehničkih nauka University of Adelaide, Faculty of Engineering, SA 5000 Adelaide, AUSTRALIA 1979. Diplomirani fizičar Univerzitet u Sarajevu, Prirodno-matematički fakultet, Odsjek za fiziku |
| Zvanje u kojem se kandidat nalazi: | Vanredni profesor |
| Zvanje u koje se kandidat bira: | Redovni profesor |
| Naučna oblast na koju se kandidat bira: | Računarsko inženjerstvo u mašinstvu |

2. BIOGRAFSKI PODACI

2.1 Osnovni podaci o kandidatu

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|-------------------------|--------------------------------|
| Ime i prezime: | Senad Burak |
| Ime oca: | Asim |
| Datum i mjesto rođenja: | 27.11.1955. Nova Bila, Travnik |
| Državljanstvo: | BiH |
| Bračno stanje: | Oženjen, dvoje djece |

2.2 Radno iskustvo

| | |
|---------------------------|--|
| Datum (od – do) | 2015 – sada |
| Zanimanje i radno mjesto | <u>Profesor</u> iz predmeta Programiranje I, Programiranje II, Ekspertni sistemi i baze znanja, Umjetna inteligencija i inteligentni sistemi |
| Područje rada | Naučne oblasti: „Računarsko inženjerstvo u mašinstvu“, „Informacione tehnologije „Računarska tehnika i grafika“ |
| Naziv i adresa poslodavca | Univerzitet u Sarajevu, Mašinski fakultet Sarajevo, Vilsonovo šetalište 9, 71000 Sarajevo, Bosna i Hercegovina |
| Datum (od – do) | 2007 – 2015 |
| Zanimanje i radno mjesto | <u>Direktor</u> Univerzitetskog tele-informatičkog centra UTIC, državni administrator .ba domene Bosne i Hercegovine |
| Područje rada | Informacione tehnologije, komunikacije, internet, informacioni sistemi |
| Naziv i adresa poslodavca | Univerzitet u Sarajevu, Rektorat, Kampus Univerziteta u Sarajevu, 71000 Sarajevo, Bosna i Hercegovina |
| Datum (od – do) | 2001 – 2007 |
| Zanimanje i radno mjesto | <u>Profesor</u> iz predmeta Računarska tehnika i grafika, Informacioni sistemi, Programiranje I, Programiranje II, Ekspertni sistemi i baze znanja, Umjetna inteligencija i inteligentni sistemi |
| Područje rada | Naučne oblasti: „Računarsko inženjerstvo u mašinstvu“, „Informacione tehnologije „Računarska tehnika i grafika“ |
| Naziv i adresa poslodavca | Univerzitet u Sarajevu, Mašinski fakultet Sarajevo, Vilsonovo šetalište 9, 71000 Sarajevo, Bosna i Hercegovina |
| Datum (od – do) | 2000 – 2001 |
| Zanimanje i radno mjesto | <u>Rukovodilac</u> IT sektora |
| Područje rada | Informacione tehnologije, komunikacije, internet, informacioni sistemi, programiranje |
| Naziv i adresa poslodavca | ‘Prima-Inter’ d. o. o., Travnik, M Tita 76 72270 Travnik, Bosna i Hercegovina |

| | |
|---------------------------|---|
| Datum (od – do) | 1999 – 2001 |
| Zanimanje i radno mjesto | Lead <u>software developer</u> |
| Područje rada | Informacione tehnologije, komunikacije, internet, informacioni sistemi, programiranje |
| Naziv i adresa poslodavca | Harvey Norman Holdings Ltd. 2006 Sydney, Australia |
| Datum (od – do) | 1997 – 1999 |
| Zanimanje i radno mjesto | <u>Lecturer</u> , subjects: “Computational techniques”, “Advance Vibrations” |
| Područje rada | Computational techniques, Vibrations |
| Naziv i adresa poslodavca | The University of Adelaide, Faculty of Engineering, Department of Mechanical Engineering, SA 5001 Adelaide, Australia |
| Datum (od – do) | 1992 – 1992 |
| Zanimanje i radno mjesto | <u>Computer programmer</u> |
| Područje rada | Informacione tehnologije, informacioni sistemi, programiranje |
| Naziv i adresa poslodavca | SoftTrade Pty Ltd. Ljubljana, Slovenija |
| Datum (od – do) | 1988 – 1992 |
| Zanimanje i radno mjesto | <u>Rukovodilac</u> računarskog centra banke |
| Područje rada | Informacione tehnologije, komunikacije, informacioni sistemi, programiranje |
| Naziv i adresa poslodavca | Privredna Banka Sarajevo / Privredna Banka Travnik, M. Tita 12., 72270 Travnik, Bosna i Hercegovina |
| Datum (od – do) | 1979 – 1988 |
| Zanimanje i radno mjesto | <u>Profesor</u> , predmeti: Fizika, Elektrotehnika |
| Područje rada | Fizika, Elektrotehnika |
| Naziv i adresa poslodavca | Srednjoškolski Centar Travnik, M. Tita 84., 72270 Travnik, Bosna i Hercegovina |

2.3 Obrazovanje

| | |
|-------|--|
| 1997. | <p>Doktorski studij Naučni stepen: Doktor tehničkih nauka (Dr. sc.)</p> <p>Tema: „Modelling and identification of dynamic systems using modal and spectral data”</p> <p>(Mentor: prof. dr. sc. Isaac M. Ram) https://digital.library.adelaide.edu.au/dspace/handle/2440/18955</p> <p>Naziv obrazovne institucije The University of Adelaide, Faculty of Engineering, Adelaide, AUSTRALIA</p> |
| 1994. | <p>Postdiplomski magistarski studij</p> <p>Oblast: „<i>Computer analysis of Inverse problems in vibrations</i>”</p> <p>Mentor: Prof. dr. sc. Isaac M. Ram</p> <p>Na osnovu činjenice da je Senad Burak 1991. završio postdiplomski studij na Univerzitetu u Sarajevu - Mašinski fakultet Zenica položivši sve ispite po Nastavnom planu i programu, nakon uspješno okončanog jednogodišnjeg istraživačkog rada na postdiplomskom studiju u periodu na The University of Adelaide, Faculty of Engineering, Adelaide, AUSTRALIA (1993-1994) izvršen je službeni transfer na doktorski studij na istom fakultetu.</p> <p>Naziv obrazovne institucije: The University of Adelaide, Faculty of Engineering, Department of Mechanical Engineering, SA 5000 Adelaide, AUSTRALIA</p> |
| 1979. | <p>Stručni naziv: Diplomirani fizičar</p> <p>Tema: „<i>Generalna teorija relativiteta – rješenje problema triju masa</i>”</p> <p>Mentor: Prof. dr. sc. Krunoslav Ljolje</p> <p>Naziv obrazovne institucije: Univerzitet u Sarajevu, Prirodno-matematički fakultet, Odsjek za fiziku</p> |

2.4 Poznavanje stranih jezika

[1] Engleski jezik

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|---------------|-----|
| Razumijevanje | 5/5 |
| Govor | 5/5 |
| Pisanje | 5/5 |

[2] Francuski jezik

| | |
|---------------|-----|
| Razumijevanje | 2/5 |
| Govor | 2/5 |
| Pisanje | 2/5 |

[3] Slovenski jezik

| | |
|---------------|-----|
| Razumijevanje | 4/5 |
| Govor | 3/5 |
| Pisanje | 3/5 |

2.5 Društvene vještine i kompetencije

Učešće na međunarodnim naučno-stručnim konferencijama, simpozijima i skupovima, implementacija značajnih naučnoistraživačkih i istraživačko-razvojnih projekata iz oblasti računarskog inženjerstva, informacionih tehnologija, komunikacija, interneta i programiranja, mentor na izradi magistarskih, diplomskih i završnih radova iz naučne oblasti računarsko inženjerstvo u mašinstvu, programiranje i informacione tehnologije.

2.6 Informatičke vještine i kompetencije

Profesionalno iskustvo u razvoju realnih, kritično važnih softverskih rješenja, integracija informacionih sistema, analiza potreba, razvoj i implementacija naučnih i inženjerskih aplikacija, računovodstveni i bankarski sistemi, ekspertsko znanje i iskustvo u implementaciji rješenja zasnovanih na relacijskim bazama podataka (xBase, IBM DB2, MS SQL, MySQL), Internet i web bazirani sistemi.

Profesionalno iskustvo u programiranju koristeći se objektno orijentiranim metodologijama, s ekspertizom u .NET tehnologijama, .NET CORE, .NET MVC, C #, JavaScript i ASP. Visoka stručnost u sistemima zasnovanim na bazama podataka MS SQL Server, IBM DB2, MySQL i ADS. Autor je svjetski poznatog dbAssist 2000 / XP sistema za administraciju xBase datoteka napisanih u VO2.7. Autor je rješenja 'Scale King XP', najpopularnijeg sistema za upravljanje elektronskim vagama u Australiji. Autor je mnogih dinamičnih web baziranih sistema temeljenih na .NET, .NET MVC. .NET CORE, C # i MS SQL Server platformama

Poznavanje i ekspertiza sljedećih programskih jezika: C#, C/C++, VB, JavaScript, Cobol, Dbase, Clipper, Visual Objects, Java, Matlab, Python, Fortran, Pascal, SQL

2.7 Objavljeni projekti, patenati ili originalne metode

2.7.1 Noviji projekti iz oblasti Informacionih tehnologija, programiranja aplikacija i informacionih sistema

- Forum Mašinskog fakulteta Universiteta u Sarajevu, Bosnia & Herzegovina (author), 2020.
<https://forum.mef.unsa.ba>,
- Web Management Information System of the Faculty of Mechanical Engineering, University of Sarajevo, Bosnia & Herzegovina (author), 2019-2020.
<http://www.mef.unsa.ba>,
- An integrated Student Information System (ISSS) implemented at the University of Sarajevo with 23 faculties and over 35,000 students, (author), 2001-2020
<https://iss.ba>,
- Driving License Test Exams, used in Federation of Bosnia & Herzegovina (author)
<https://www.testovi.ba>, 2018-2020
- Driving License Management Information System, used in the Ministry of Education, Science, Culture and Sports, Central Bosnian Kanton, Federation of Bosnia & Herzegovina, (author), 2016-2020.
<https://www.e-skole.ba/vozaci>,
- Web Management Information System of the Ministry of Education, Science, Culture and Sports, Federation of Bosnia & Herzegovina, Central Bosnian Kanton, (author), 2018-2019.
<https://mozks-ksb.ba>,
- Integrated Educational Management Information System used in over 200 primary and secondary schools in Bosnia & Herzegovina, (author), 2011-2020
<https://emis.ba>,
- School Management Information System used in 82 primary and secondary schools in Bosnia & Herzegovina, (author), 2015-2020
<https://e-skole.ba>,
- Educational Management Information System used in 82 primary and secondary schools in Bosnia & Herzegovina, (author)
<https://web.emis.ba>, 2015-2020
- Schedule system, advanced time table application for educational institutions, (author)
<https://www.e-skole.ba/raspored>, 2015-2020
- Educational Management Information System e-Dnevnik, (author)
<https://ocjene.emis.ba>, 2015-2020
- Library Management Information System used in faculties, primary and secondary schools, (author), 2016-2020
<http://biblioteka.mef.unsa.ba>,

3. OBJAVLJENI RADOVI

3.1 OBJAVLJENI NAUČNI RADOVI U INDEKSIRANIM ČASOPISIMA SA RECENZIJOM

- u zvanju vanredni profesor:

1. S. Burak: "Implementacija informacionih tehnologija na Univerzitetu u Sarajevu", Zbornik radova-Univerzitet u Sarajevu, 2008.

Web: <https://www.ceeol.com/search/article-detail?id=178092>

Indeksirano u bazama: CEEOL, Google Scholar

Abstract

"You cannot expect old designs to work in new circumstances", izjavio je Richard P. Feynman, dobitnik Nobelove nagrade za fiziku 1968. godine. Ove, 2008. godine, Univerzitet u Sarajevu ulazi u kritičnu fazu svog djelovanja najavljenom integracijom visokoškolskih institucija i punom implementacijom principa Bolonjskog procesa, i ova misao najkraće opisuje temeljni problem s kojim se trenutno suočavamo. Tradicionalni pristup obrazovnom procesu i klasične metode na kojima je on baziran jednostavno više ne mogu odgovoriti izazovima modernog doba, kao što su fleksibilniji pristup procesu edukacije, promocija horizontalne i vertikalne mobilnosti, potreba direktne komunikacije nastavnog osoblja sa studentima, uvažavanje novonastalih tehnoloških promjena, uvođenje sistema kao što su distance learning, e-Education i video conferencing, promocija atraktivnosti, konkurentnosti itd. Informacione tehnologije, moderni komunikacioni sistemi i Internet revolucionirali su mnoge oblasti savremenog svijeta, ali i pokazali izuzetnu upotrebljivost u obrazovnim institucijama. Univerzitet u Sarajevu je prepoznao taj novi trend i kvalitet koji on donosi, te je u proteklih desetak godina došlo do značajnog napretka i praktične implementacije informaciono-komunikacionih tehnologija. U ovom radu ćemo dati kraću analizu razvoja i implementacije IT-a u proteklom periodu na UNSA, ali i ukazati na postojeće probleme, nedostatke i prepreke. Imperativ za ulazak u sljedeću fazu razvoja IT-a, koji između ostalog podrazumijeva implementaciju sistema upravljanja ljudskim resursima, sistema za podršku finansijskom poslovanju, kao i centraliziranoj univerzitetskoj bazi podataka s modulima za pretraživanje, izvještaje i analizu, bit će detaljno obrazložen. Novi podsistem ISSS-a, zadužen za automatsko generiranje dodatka diplomi (diploma supplement), koji će biti prezentiran on-line, demonstrirat će neke od tih novih najava. U zadnjem dijelu rada će biti prezentirani planovi razvoja akademske računarske mreže UNSA, kao i najavljene varijante implementacije mreže javnih univerziteta FBiH.

Keywords: Bolonjski proces; informacione tehnologije; univerzitetski informacioni sistem

2. S. Burak: "Strategija informatizacije integriranog univerziteta", Zbornik radova-Univerzitet u Sarajevu, 145-150, 2009.

Web: <https://www.ceeol.com/search/article-detail?id=4074>

Indeksirano u bazama: CEEOL, Google Scholar

Abstract

University of Sarajevo, as the leading academic and scientific institution in Bosnia and Herzegovina, properly responded to the modern-age challenges by introducing innovative methods, based on modern standards and information technologies, to the teaching and scientific process, which was made official by inclusion in the Bologna process and adoption of the Law on Higher Education. All past experience in implementation of the Bologna principles, especially in process of integration of complex universities such as the University of Sarajevo, unequivocally confirm that the introduction of information technology is crucial for their successful implementation. University of Sarajevo has, in that sense, initiated a wide range of projects that have significantly helped overcome the problems caused by the increased requirements and needs of the academic community. However, the present level of computerization will not meet the demands of the newly adopted Law on Higher Education and the concept of an integrated university. Minimum preconditions for successful functioning of an integrated university assume the successful implementation of an integrated university information system that should cover all aspects of education, science and research, but also business university activities and activities of each of its members. Among other things, this means administering and monitoring of academic staff, students, teaching, scientific and research activities and projects, but also the finance, accounting, salary management etc. University computerization strategy must be based on the latest achievements in the field of information technology and on the experience of developed countries, and it necessarily requires a radical reorganization and change.

Keywords: Bologna Reform, Integrated University, Information Technologies

3. I Horman, I Busuladžić, S Burak, N Beljak: "Influence of Different Parameters on Mechanical Characteristics of Wood Welded Assemblies", Advanced Technologies, Systems, and Applications III, pp 544-554, Springer 2018.

Web:

https://www.researchgate.net/publication/329763446_Influence_of_Different_Parameters_on_Mechanical_Characteristics_of_Wood_Welded_Assemblies_Proceedings_of_the_International_Symposium_on_Innovative_and_Interdisciplinary_Applications_of_Advanced_Technology

DOI: [10.1007/978-3-030-02577-9_53](https://doi.org/10.1007/978-3-030-02577-9_53)

EID: 2-s2.0-85062898375

<https://www.scopus.com/authid/detail.uri?authorId=6602369957>

Indeksirano u bazama: SCOPUS

Abstract

The goal of this study was to test strength of joints for two lamellas, made of solid massive wood, rotary welded with dowels, respecting the change in direction of side penetration into the model, as well as the change of the tightness. Under the influence of friction and tightness the dowel wear occurs, where changing their geometry ultimately affect the strength. The experiment was set to test the strength of welds in three series of samples prepared by models in which the two cases welding was done with constant tightness following the weld depth but with the change of the penetration direction into the elements, and one model that was subject to tightness change grading the bore of the weld depth. Variable parameters such as; direction of dowel penetration through the elements in conjunction, tightness, direction of dowel penetration with respect to the

line-grained (as incidental factor), species (only at the stage of selecting the material for the experiment) and wood humidity during testing (relative humidity of $50 \pm 5\%$) were adopted in the experiment.

Keywords: wood welded assemblies, optimization

4. Senad Burak, Fikret Veljovic: "Ergonomic Analysis and Redesign of Workspace in Order to Minimize Workers' Workload and Optimize Their Nutrition", TEM Journal. Volume 8, Issue 2, Pages 572-576, 2019.

Web: http://www.temjournal.com/content/82/TEMJournalMay2019_572_576.pdf

DOI: [10.18421/TEM82-33](https://doi.org/10.18421/TEM82-33)

EID: 2-s2.0-85067561452

Indeksirano u bazama: Web of Science, SCOPUS, DOAJ, EBSCO, CEEOL, Research Bib, MIAR - Information Matrix for the Analysis of Journals, ERIH PLUS, Google Scholar, TIB - German National Library of Science and Technology

Abstract

The problem related to the inadequate position of workers during lifting heavy loads is the everyday life of many environments, such as industrial halls or warehouses, which often results in the deepening of the worker's spine load problem.

An analysis of such a workplace was carried out in this paper. The workloads at specific body zones were determined, whether they were within the prescribed limits or exceeded it, and on that basis a redesign of the workspace was made in accordance to the anthropological values of the model.

Keywords: Biomechanics, Ergonomics, software package CATIA with ergonomic modules.

5. Fikret Veljovic, Senad Burak, Edin Begic, Izet Masic: "Redesign of Work Space in Order to Reduce Noise Health Effects", Mater Sociomed 31 (2), 135-140, 2019.

Web: https://www.researchgate.net/publication/333938654_Redesign_of_Work_Space_in_Order_to_Reduce_Noise_Health_Effects

DOI: [10.5455/msm.2019.31.135-140](https://doi.org/10.5455/msm.2019.31.135-140)

U bazi: PubMed, PubMed Central, PubMed Central Europe, EBSCO, Index Copernicus, Ulrich's Periodicals Directory, Geneva Foundation for Medical Education and Research – GFMER, HINARI, ProQuest, NewJour, ISC Master Journals List, CrossRef, Google Scholar, CAB Abstracts, Global Health, Genamics JournalSeek, WorldCat, NLM Catalog, VINITI of RAS, Catalyst, SafetyLit, EastView, ScopeMed, EastView, Cab Abstracts, Global Health, Research Bible, Academic Key

Abstract

Noise represent an unwanted sound that endangers human health in multiple manners and in work setting causes reduction of productivity on one side, and increased waste on the other. Noise pollution occurs when the ear is exposed to the volume of sound that is disturbing, stressful or

directly damaging hearing, but also acting on the organism as a whole. Aim: The aim of the article is to examine the vulnerability of workers working on the "press" machine, and to carry out an analysis and examine the press operator workplace, then perform the noise spread measurement in the press operator work area and compare the current measurements with the permissible levels and analyze the time period of worker exposure, as well as presentation of the effects of noise on productivity and workers health. The aim of the article also includes the proposal for decrease of noise pollution. Methods: A noise analysis at the workplace of workers working on a "press" machine was performed, which is exposed to a high impulse noise due to which the quality and quantity of production are reduced. For the purpose of calculating the noise level for one working day at the press operator site 1, 2 and 3, it is necessary to analyze the noise level in time. Operators spend most of their working hours at stations 1 and 3 where the measured noise level is $L_{m1} = 94.7$ dB is taken, or at position 3, $L_{m3} = 97.2$ dB. The measured noise level at these locations without the operation of the press is $L_{m1} = 80.1$ dB, or at station 3 is $L_{m3} = 80.1$ dB. Results: It was found that these operators working on the machine in question were exposed to a noise over the limit for more than three years. Their health problems that arise as a result of noise exposure are documented in their health charts. In order to achieve uninterrupted work at the press machine, during the eight hours shift, a noise correction is required to allow the equivalent sound level to fall within one day to the permissible 85 dB. In this regard, we consider the fact that we have known that the press produces a sound level of 110 dB, and that there is a reverberation (reflecting) sound. Given the technical characteristics of the plant, the reduction of the sound intensity of the source itself is not possible, so the suggestions of the technical solution will be based on reduced reflected sounds and to prevent the spread of direct sound to the operator. Conclusion: Workers are exposed to permanent noise during a working day, which produces a number of consequences for the health of the worker, but also the employer and the community. The imperative of the employer is to reduce the number of rejects, increase profitability and to have a positive impact on the health of the individual.

Keywords: Noise, medicine, productivity, remediation

6. Fikret Veljovic, Senad Burak, Edin Begic, Izet Masic: "Noise Effect on Blood Pressure and Heart Rate - Regression Analysis in Service of Prediction", Acta Informatica Medica 27(3):162-166, 2019.

Web:

https://www.researchgate.net/publication/335149784_Noise_Effect_on_Blood_Pressure_and_Heart_Rate_-_Regression_Analysis_in_Service_of_Prediction

DOI: [10.5455/aim.2019.27.162-166](https://doi.org/10.5455/aim.2019.27.162-166)

EID: 2-s2.0-85075881737

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Abstract

Investigations have shown that noise is one of the etiologic factors that leads to a risk of cardiovascular incidence. Aim: To present effect of noise on arterial tension and heart rate of

workers who work on machine press during period of three-years. Methods: The study had a prospective character and included 30 subjects (n = 30) who were monitored over a three-year period (36 months). The respondents worked at the factory "Cimos" on machine press (Zenica, Bosnia and Herzegovina). Ten machine presses were monitored, and three workers worked on each press. Approximately every worker was affected by a wide range of noise between 65 and 110 dB in the workplace (via isohypse). MATLAB (version 9.4, MathWorks, Natick, Massachusetts, United States of America (USA)) software was used to estimate the possible damage caused by noise in factories that produce noise in their work. Results: During the three-year period, arterial tension in the subjects increased, and at the end of the observed period, they were considered as patients with a diagnosis of arterial hypertension grade I. The tension depends on the strength of the produced noise, and the values also depend on position of the respondent on the machine press. Conclusion: Noise prevention has become a problem of modern medicine. The result of our work allows estimation of arterial hypertension in specified time in case of exposure to a certain strength of noise. Prevention of noise, daytime noise prevention as well as better equipment for work and preventive equipment are imposed as imperative in such or similar conditions, with the need of development of national strategies for this issue in countries where they are not present.

Keywords: noise, cardiovascular risk, arterial hypertension, heart rate.

7. R. Karabeg, F. Veljovic, A. Voloder, S. Becirbegovic, Dz. Jahic, S. Burak, E. Begic, I. Masic: "A Mathematical Model of Achilles Tendon Overload During Jump Shot", Medical Archives 73(4):228-233, 2019.

Web:

https://www.researchgate.net/publication/335685624_A_Mathematical_Model_of_Achilles_Tendon_Overload_During_Jump_Shot

DOI: [10.5455/medarh.2019.73.228-233](https://doi.org/10.5455/medarh.2019.73.228-233)

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Indeksirano u bazama: PubMed/MedLine, Excerpta medica/EMBASE, Scopus, Scirus, EBSCO, DOAJ, Index Copernicus, Ulrich's Periodicals Directory, Geneva Foundation for Medical Education and Research – GFMER, HINARI, ProQuest, NewJour, SCImago Journal and Country Rank, ISC Master Journals List, CrossRef, Google Scholar, Genamics JournalSeek, WorldCat, VINITI of RAS, Research Gate, Catalyst, ScopeMed, SafetyLit, BioinfoBank Library, PubGet, GetCited, CIRRIE, Kubon and Sagner OPAC

Abstract

Achilles tendon injuries usually occur with abrupt movements at the level of the ankle and foot, and the consequence is the overload of the Achilles tendon. Aim: Examine the Achilles tendon load as a function of the landing angle, and find the critical point at which the tendon overload begins and when a further increase in the landing angle can lead to rupture. Methods: The study has a prospective character. The input data represent the anthropometric values of the respondents, who are professional basketball players in the senior national team of Bosnia and Herzegovina and were processed in the CATIA v5-6 software solution. Software data processing analyzed the landing angles and the transfer of force to the Achilles tendon. The end result is a regression curve, which projects the angle at which the Achilles tendon is overloaded, and indicates an increased risk of possible injury to the tendon itself. Results: The onset of overloading starts at an angle of 32.28° and at an angle of 35.75° the overloaded load occurs, indicating the need for the subject to change

the position of the foot to prevent damage to the tendon itself. Conclusion: An angle of 35.75° is the critical point at which the Achilles tendons are overloaded at the very landing. Prevention of injury should go in the direction of practicing the feet for a particular position at the time of the landing, and in the direction to develop adequate footwear that would mitigate the angle at the landing.

Keywords: Achilles tendon, injury, rupture, regression analysis.

8. Fikret Veljovic, Senad Burak, Edin Begic, Dzenan Jahic, Faris Kadic, Amer Iglica: "Lumbar-load analysis of a soldier while carrying the heavy loads", Periodicals of Engineering and Natural Sciences 7 (4), 1599-1606, 2019.

Web: https://www.researchgate.net/publication/337286336_Lumbar-load_analysis_of_a_soldier_while_carrying_the_heavy_loads#fullTextFileContent

DOI: [10.21533/pen.v7i4.825](https://doi.org/10.21533/pen.v7i4.825)

Indeksirano u bazama: Scopus, DOAJ, Google Scholar

Abstract

The aim of the article was to create an appropriate computer model based on the real status of the mortar operator's workplace and to analyze the workplace. After that, for any possible exceedances from the aspect of the organism's load and safety, the aim is to redesign the workplace and bring it within the limits of the permissible load, and therefore the required safety. The aim is also to identify the characteristic work movements performed by the soldier and to carry out an ergonomic analysis of the soldier's efforts and to propose appropriate improvements. Methods: The analysis is performed on a total of 20 soldiers, from which is determined an average model of the following characteristics: 180 cm in height and 85 kg in weight. The task is to take a mine from the shell containing the mines, then transfer it to the mortar and fill the mortar barrel. The weight of the 120 mm mortar grenade is 14.8 kg. The average soldier is 26 years old and his military exercise lasts 4 hours. The CATIA software package (Dassault Systèmes, Vélizy-Villacoublay, France) is used for analysis. By knowing the anthropometric and work environment data, with ergonomic design and analysis, the following analyses were made: biomechanical analysis, rapid upper limb assessment (RULA) and carry analysis (option from CATIA software). Results: The proposed modification of the position resulted in a decrease in the L4/L5 torque from 316 Nm to 154 Nm along with decreasing of the compression force on the L4/ L5 from 5,779 N to 3038 N (the compression force allowed is 3,400 N), and while the RULA analysis is from the red color position 1 (score 7; maximum load requiring rapid repositioning of such position), revised final score 4 made in yellow (a solution acceptable for this work place). Conclusions: By ergonomic analysis, obtained proposal will lead to less chance of injury, prevention of burn out syndrome, fewer chances of illness, decreasing the fatigue, greater safety, less energy spent and better preparedness for all necessary tasks.

Keywords: Lumbar-load analysis, Ergonomics, Anthropometry, CATIA - ergonomic modules.

9. Hazim Bašić, Mehmed Duharkić, Senad Burak: "Numerical simulation of hot forging process in production of axisymmetric automobile parts", Periodicals of Engineering and Natural Sciences, 7 (4) 1572-1581, 2019.

Web: <http://pen.ius.edu.ba/index.php/pen/article/view/487>

DOI: [10.21533/pen.v7i4.487](https://doi.org/10.21533/pen.v7i4.487)

Indeksirano u bazama: Scopus, DOAJ, Google Scholar

Abstract

The finite element method and the DEFORM software were used for the plastic metal flow prediction of ring shaped parts. Various parameters that affect the forging operation are the material characteristics like material strength, ductility, deformation rate, temperature sensitivity and frictional characteristics of the workpiece, preform design, die design and die material. Numerical simulation has been done for axisymmetric automobile parts. The procedure of numerical modeling contains all simulations phases like the movement of preform from inductor to the tool, placement and setting of preform piece inside the tool before the blow in order to get as good result as possible. These techniques are used to reduce the amount of input material for forgings, extend the lifetime of forging dies, and prevent defects in forged components.

Keywords: Plastic flow; Hot forging; Finite element method; Numerical simulations.

10. Fikret Veljović, Senad Burak, Avdo Voloder, Edin Begić, Amer Iglica: "Mathematical Model and Analysis of Back and Abdominal Muscle Loading in Relation to Angle of Bending and External Load", TEM Journal, Volume 8, Issue 4, Pages 1326-1330, ISSN 2217-8309, 2019.

Web:

http://www.temjournal.com/content/84/TEMJournalNovember2019_1326_1330.pdf

DOI: 10.18421/TEM84-32

Indeksirano u bazama: Web of Science, SCOPUS, DOAJ, EBSCO, CEEOL, Research Bib, MIAR - Information Matrix for the Analysis of Journals, ERIH PLUS, Google Scholar, TIB - German National Library of Science and Technology

Abstract

The action of forces in the back and abdomen under conditions of loading of different external forces at different bending angles is unexplored area. This paper presents a methodology that enables calculation of the magnitudes of forces in the back and abdominal muscles using the combined techniques of the CATIA software system, appropriate mathematical model and polynomial regression analysis.

The person of 180cm in height and 85 kg in weight is loaded with 5 + 5 kg of cargo in both hands, and three cases of bending angles of 150, 300 and 600 relative to the vertical axis are analysed.

Keywords: Ergonomics, anthropometry, abdomen, CATIA - ergonomic modules.

11. Fikret Veljovic, Senad Burak, Avdo Voloder, Benjamin Kulovac, Dzenan Jahic, Faris Kadic, "Influence of school backpacks on spinal column load in primary school students", Periodicals of Engineering and Natural Sciences

Web:

<https://www.researchgate.net/publication/337874333> Influence of school backpacks on spinal column load in primary school students

DOI: [10.21533/pen.v7i4.894](https://doi.org/10.21533/pen.v7i4.894)

Indeksirano u bazama: Scopus, DOAJ, Google Scholar

Abstract

The problem of heavy school bags is a global problem recognized in many countries in Europe and the world, including in Bosnia and Herzegovina. In addition to poor posture habits, "sedentary lifestyles" and insufficient physical activity, school bags is one of the main causes of low back pain and deformity in pupils. The recommendation of the World Health Organization (WHO) is that the weight of the school bag should not exceed 10% of the student's weight. However, in practice these limitations are far from reality with the obvious problems caused by too heavy bags. The aim of the paper is to identify and analyze the backbone load caused by the overweight school backpacks in real school work conditions and eliminate them by creating new solutions that are in line with ergonomic and biomechanical principles, as well as the recommendation given by WHO. Methods: The research included first grade primary school students at the age of seven, including their parents. The research began by interviewing parents with relevant questions, as well as measuring the students' height and weight and the weight of their school backpacks. The analysis was performed in CATIA v5 software package (Dassault Systèmes, Vélizy-Villacoublay, France) using its advanced biomechanical modules. By knowing the anthropometric and work environment data with ergonomic design and analysis, the biomechanical analysis, rapid upper limb assessment (RULA) and carry analysis were performed. Results: The conducted survey showed that 84% of students walk from home to school nineteen minutes on average and that 77% of them carry their school backpacks independently. Based on the measurements, it has been shown that, on average, the weight of the school backpacks is well above the WHO recommendation. A study conducted on a representative sample of students confirmed the relation between fatigue and spinal pain caused by carrying a heavy school bag. Computer analysis showed excessive loads on the spinal segment of L4/L5 that were outside the normal range of 3,400 N. Conclusions: A simulated computer analysis using RULA and biomechanical analysis with calculations of maximum loads in the lumbar segment of students found that school backpacks carried by students were too heavy for their age and well beyond the normal limits and WHO recommendations. The analysis showed that it is necessary to reduce the weight of the bag by about 30%.

Keywords: Musculoskeletal system, Lumbar-load analysis, Ergonomic.

12. Senad Burak, Edin Begic, Nedim Begic, Faris Kadic: "Sedentary behavior as a public health issue: Ergonomics as a useful tool", Sustainable Engineering and Innovation, Vol 1No 2, 112-120, 2020.

Indeksirano u bazama: CEEOL, Google Scholar

Web: <https://sei.ardascience.com/index.php/journal/article/view/21>

ISSN 2712-0562

Abstract

Background: Sedentary behavior carries the risk of musculoskeletal problems, especially in the lumbosacral region of the spinal column. According to modern lifestyle, this has begun to be a

public health issue.

Objective: To point to the health risks of working at the computer and present an ergonomic analysis of the typical and improved position of workers in front of the computer, thereby reducing the chances of emergence occupational diseases.

Results: Changing the position of the subjects led to a change in lumbar pressure from 2,818 N/m² to 351 N/m². Software analysis of the changed position indicates that this position is acceptable, both for the lumbosacral region of the spine and for the abdominal muscles.

Conclusions: A change in body position will decrease lumbar moment and the load on the lumbosacral region of the spine. Work chair with lumbar support, the right desk height, setting the appropriate position of the monitor, selecting the optimal keyboard and mouse, dividing the workspace into appropriate zones, as well as changing lifestyle and habits should be part of the management of people who spend most of their working time in a sitting position.

Keywords: Ergonomics; Sitting position; Prevention; Software.

13. Avdo Voloder, Fikret Veljović, Senad Burak, "Determination of angular acceleration of the driving rotating member of planar mechanisms by method of guessing", International Journal of Advanced and Applied Sciences, <http://www.science-gate.com/IJAAS.html>, 2020. (Accepted for publication and printing)

Indeksirano u bazama: Web of Science Core Collection, Thomson Reuters, DOAJ, Index Copernicus, National Library of Medicine (NLM) Catalog, Google Scholar

Abstract

In this paper we present a novel method for finding an unknown angular acceleration of the driving member of the planar hinged-arm mechanism, which is based on the reduction of the mechanism and quite arbitrary guessing the value of angular acceleration.

Using this method, it is possible to directly determine the angular acceleration of the driving rotary member of the mechanism without the need to calculate the kinematic characteristics of the other members.

The presented method can be applied to all planar mechanisms. The procedure used in this method is much shorter than in the case of the general laws of system dynamics. The solution obtained by this method is independent of the assumed initial solution, with the exception that the assumed solution cannot be zero.

Keywords: planar mechanisms, angular acceleration, mechanism method of guessing.

14. Fikret Veljovic, Senad Burak, Selma Čuhara: "An ergonomic analysis and computer simulations of nursing activities while raising the patients in hospitals and nursing homes", Periodicals of Engineering and Natural Sciences, <http://pen.ius.edu.ba/index.php/pen>, 2020. (Accepted for publication)

Indeksirano u bazama: Scopus, DOAJ, Google Scholar

Abstract

Background: The use of trolleys for transporting the patients and lifting and lowering them in the trolley is a repeated activity in the daily work of a nurse, and a very common cause of the load of the lumbosacral part of the spine and the consequent pathological deformity, and the onset of

clinical symptomatology of painful lumbo-sacral syndrome. The high level of excessive biomechanical stress is associated with the established practice of using standard medical wheelchairs to move patients inside the hospital. The process itself depends on the characteristics of the patient, his or her weight, as well as his/her cooperativeness, but primarily depends on the nurse's mobility. Although nurses strive to be in a position that reduces the load on the lumbosacral part of the spine during practice, this is often impracticable due to the patient's inconsistency.

Objective: To present the ergonomic analysis of the medical nurse's workplace while lifting the patient into the wheelchair and to display solution for improving working conditions and prevention of musculoskeletal disorders.

Results: By ergonomic module of this software, we got results that present load on lumbosacral region of spine of medical nurses during their daily activities, especially in the position of lifting and lowering patients. It was concluded that maximal spinal loading decreases significantly and becomes less than critical (3,100 N) in the case of a wheelchair that has ability to automatically lift and lower patient.

Conclusions: The use of hospital wheelchairs with an mechanism for the automatic lifting and lowering of patients and with a sliding seat will reduce the load on the lumbosacral region of the spine, prevent the onset of lumbosacral pain syndrome, facilitates work for the medical nurse and allows nurse to handle the patient on her own. The prevention of lumbosacral pain syndrome improves the quality of work of the nurse and extends the working life. Use of this type of wheelchair is justified in terms of cost-benefit analysis.

Keywords: Low back pain, Ergonomics, Software Tools.

- ranije, prije izbora u zvanje vanredni profesor:

1. Senad A. Burak, "Modelling and identification of dynamic systems using modal and spectral data", Thesis (Ph.D.), University of Adelaide, Faculty of Engineering, Dept. of Mechanical Engineering, 1997.

2. S. Burak and Y.M. Ram, "The construction of physical parameters from spectral data", Mechanical Systems and Signal Processing, 15, pp. 3-10, 2001.

3. Burak, S. and Doleček, V. (2001): "Student Information Systems – Trend 2000, Practical Approach", The 3rd International Conference on Revitalization and Modernization of Production RIM 2001, Bihać

4. Burak S., Doleček V., Karabegović I., "Simulation based analysis and design of robot arm systems", The 7th International Research/Expert Conference "Trends in the Development of Machinery and Associated Technology", TMT 2003, Lloret del Mar, Barcelona, Spain, Sept. 15-16, 2003.

5. Burak S., Doleček V., Karabegović I., "3D graphical simulation of virtual robot systems", The 4th International Conference on Revitalization and Modernization of Production, RIM- 2003. Bihać B&H, Sept. 25-27, 2003.

6. Senad Burak, "An integrated software package for analytical and graphical interpretation of non-linear systems", Informatika, the 4th International Conference on e-

economy and IT”, Mostar 2003.

7. S. Burak: Virtual robotics – a graphical simulator of SCARA type of robots , 8th International Research/Expert Conference, Neum BiH, September, 2004

8. Senad Burak, “Software developers and the new .NET world”, Informatika, the 5th International Conference on e-economy and IT, Mostar 2004.

9. Senad Burak, “Building a software system for managing and automating electronic weighing scales”, Informatika, the 5th International Conference on e-economy and IT, Mostar 2004.

10. S. Burak: “A Graphical Simulation for Path Planning Problem for Autonomous Mini Robots”, 9th International Research Conference, Antalya, Turkey, September, 2005

11. S. Burak: “Artificial intelligence and the problem of path finding in robot simulations”, The 10th International Research/Expert Conference “Trends in the Development of Machinery and Associated Technology “, TMT 2006, Lloret del Mar , Barcelona, Spain, Sept. 11-15, 2006.

12. N. Bijedic and S. Burak: “Cluster analysis of a scale-free network”, The 10th International Research/Expert Conference “Trends in the Development of Machinery and Associated Technology “, TMT 2006, Lloret del Mar , Barcelona, Spain, Sept. 11-15, 2006.

13. S. Burak: "Neophodna informatička struktura za primjenu i razvoj Bolonjskog procesa", Zbornik radova-Univerzitet u Sarajevu, 2007.

4. OBJAVLJENE KNJIGE

- u zvanju vanredni profesor: 2 (dva) naslova

1) Senad Burak, Zejd Imamović, „**Zbirka riješenih zadataka iz Programiranja I**”, Univerzitet u Sarajevu, Mašinski fakultet, 2020, ISBN - 978-9958-601-82-8, COBISS.BH-ID - 28794630

<https://plus.bh.cobiss.net/opac7/bib/28794630>

2) Senad Burak, Zejd Imamović, „**Zbirka riješenih zadataka iz Programiranja I – MATLAB**”, Univerzitet u Sarajevu, Mašinski fakultet, 2020, ISBN - 978-9958-601-83-5, COBISS.BH-ID - 28794886

<https://plus.bh.cobiss.net/opac7/bib/28794886>

- ranije, prije izbora u zvanju vanredni profesor: 1 (jedan) naslov

3) Senad Burak, „**Uvod u programiranje: C++, .NET, C#, Matlab**”, Univerzitet u Sarajevu, Mašinski fakultet, 2010, ISBN 978-9958-585-78-4, COBISS.BH-ID 17799686,

<https://plus.bh.cobiss.net/opac7/bib/17799686>

5. NAUČNI I STRUČNI PROJEKTI

5.1 MEĐUNARODNI NAUČNO-ISTRAŽIVAČKI PROJEKTI

- u zvanju vanredni profesor

- [1] Tempus projekt „Razvoj informacijske pismenosti za cjeloživotno učenje i ekonomiju zasnovanu na znanju u zemljama Zapadnog Balkana, Limerick, Republika Irska, 2011.
- [2] Tempus projekt “Launching of the Network of Mediterranean Universities for Education for Sustainable Development”, Athens, Greece, 2008-2010
- [3] Tempus project “R&D Capacities – Adapting research structures to enhance university knowledge transfer”, Gratz, Austria, 2009.
- [4] Tempus projekt: Example of Excellence for Joint (Degree) Programme Development in South Eastern Europe, Poitiers, Republika Francuska, 2010.

- u zvanju docent:

- [1] Tempus projekt: Credit Transfer System in European Technical Education, 2006.

5.2 DOMAĆI STRUČNI I NAUČNO-ISTRAŽIVAČKI PROJEKTI I STUDIJE

- u zvanju vanredni profesor:

- [1] High Performance Computing, Faculty of Mechanical Engineering Sarajevo, 2011.
 - [2] III Savjetovanje o reformi visokog obrazovanja - primjena Bolonjskih principa na Univerzitetu u Sarajevu, 2009.
 - [3] Tempus project CARDS - Joint European Projects_JEP- pod nazivom:"Development of Master program in Sustainable Energy Engineering (SEE)" /Razvoj programa postdiplomskog studija iz Razvoja energetske inženjerstva", Mašinski fakultet Sarajevo, 2008.
 - [4] “Postavljanje wireless mreže na objektima visokoškolskih ustanova Univerziteta u Sarajevu, projekt Vlade Kantona Sarajevo, predsjednik koordinacionog odbora i odgovorno lice sprovođenja projekta, 2008-2010
 - [5] Informacioni sistem HR UNSA – menadžment ljudskih resursa Univerziteta u Sarajevu, projekt Rektorata Univerziteta u Sarajevu, član koordinacionog odbora, autor i odgovorno lice sprovođenja projekta, 2010-2014
 - [6] Informacioni sistem za provedbu Eksterne mature osnovnih škola Kantona Sarajevo, Projekt Ministarstva obrazovanja, nauke i mladih Kantona Sarajevo, autor i odgovorno lice sprovođenja projekta, 2015-2016
 - [7] Provedba Eksterne mature osnovnih škola Kantona Sarajevo, Projekt Ministarstva obrazovanja, nauke i mladih Kantona Sarajevo, predsjednik Kantonalne komisije za informatičku podršku, 2015
 - [8] Informacioni sistem za provedbu poslova iz oblasti Zakona o osnovama bezbjednosti saobraćaja na putevima u Bosni i Hercegovini, Projekt Ministarstva obrazovanja, nauke i mladih Kantona Sarajevo, odgovorno lice sprovođenja projekta, 2015
 - [9] Nadogradnja, proširenje i održavanje sustava EMIS svih osnovnih i srednjih škola
-

Srednjobosanskog Kantona / Kantona Središnja Bosna, projekt Ministarstva obrazovanja i nauke / Ministarstva obrazovanja i znanosti SBK / KSB, autor i izvršitelj projekta po autorskom ugovoru, 2016.

- [10] Edukacija – stručno usavršavanje direktora i ravnatelja te EMIS odgovornih osoba svih osnovnih i srednjih škola Srednjobosanskog Kantona / Kantona Središnja Bosna, projekt Ministarstva obrazovanja i nauke / Ministarstva obrazovanja i znanosti SBK / KSB, izvršitelj projekta po autorskom ugovoru, 2016.
- [11] Izrada Informacionog sistema za upravljanje dokumentima DMS UNSA, Projekat Rektorata Univerziteta u Sarajevu, autor i izvršitelj projekta po autorskom ugovoru, 2012.
- [12] Izrada Informacionog sistema za upravljanje bibliotečnom građom Biblioteke Rektorata Univerziteta u Sarajevu e-Biblioteka UNSA, Projekat Rektorata Univerziteta u Sarajevu, autor i izvršitelj projekta po autorskom ugovoru, 2012.
- [13] Klinički centar Univerziteta u Sarajevu, dizajn dorade baze podataka i unosa podataka u sistem za Projekt “Ventilaciono/perfuziona sintigrafija u detekciji plućne embolije i praćenje terapijskog efekta kod oboljelih”, autor i izvršitelj projekta po autorskom ugovoru, 2012
- [14] Informatizacija osnovnih i srednjih škola Kantona Sarajevo, programiranje i implementacija Informacionog sistema EMIS WEB, Projekat Ministarstva obrazovanja, nauke i mladih Kantona Sarajevo, autor i odgovorno lice sprovođenja projekta, 2009 - 2015
- [15] Informatizacija osnovnih i srednjih škola Kantona Sarajevo, programiranje i implementacija aplikacije EMIS PRINT za elektronsko izdavanje i štampanje svjedodžbi i uvjerenja Projekat Ministarstva obrazovanja, nauke i mladih Kantona Sarajevo, autor i odgovorno lice sprovođenja projekta, 2009 – 2015
- [16] Univerzitet u Sarajevu, Fakultet Krininalističkih nauka, Izgradnja i implementacija Informacionog sistema studentske službe, izvršitelj projekta po autorskom ugovoru, 2001-2015
- [17] Univerzitet u Sarajevu, Mašinski fakultet, Izgradnja i implementacija Informacionog sistema studentske službe, autor i izvršitelj projekta po autorskom ugovoru, 2000-2015
- [18] Univerzitet u Sarajevu, Saobraćajni fakultet, Izgradnja i implementacija Informacionog sistema studentske službe, autor i izvršitelj projekta po autorskom ugovoru, 2001-2015
- [19] Univerzitet u Sarajevu, Filozofski fakultet, Izgradnja i implementacija Informacionog sistema studentske službe, autor i izvršitelj projekta po autorskom ugovoru, 2001-2015
- [20] Univerzitet u Sarajevu, Građevinski fakultet, Izgradnja i implementacija Informacionog sistema studentske službe, autor i izvršitelj projekta po autorskom ugovoru, 2001-2015
- [21] Univerzitet u Sarajevu, Arhitektonski fakultet, Izgradnja i implementacija Informacionog sistema studentske službe, autor i izvršitelj projekta po autorskom ugovoru, 2001-2015
- [22] Univerzitet u Sarajevu, Muzička Akademija, Izgradnja i implementacija Informacionog

sistema studentske službe, autor i izvršitelj projekta po autorskom ugovoru, 2001-2015.

- u zvanju docent:

- [1] Univerzitet u Sarajevu i 'COMP – 2000' Društvo za istraživanje i razvoj informacionih sistema Sarajevo, "Plan razvoja integralnog informacionog sistema Univerziteta u Sarajevu", 2003
- [2] Univerzitet u Sarajevu i 'COMP – 2000' Društvo za istraživanje i razvoj informacionih sistema Sarajevo, "Strategija razvoja integralnog informacionog sistema Univerziteta u Sarajevu", 2003
- [3] Univerzitet u Sarajevu, Mašinski fakultet, Izgradnja i implementacija Informacionog sistema studentske službe, autor i izvršitelj projekta po autorskom ugovoru, 2000
- [4] Univerzitet u Sarajevu, Mašinski fakultet, Izgradnja i implementacija Informacionog sistema biblioteke, autor i izvršitelj projekta po autorskom ugovoru, 2000

6. NASTAVNO-PEDAGOŠKI RAD

| | |
|-------------|--|
| 2008 – sada | Profesor iz predmeta Programiranje I, Programiranje II, Ekspertni sistemi u baze znanja, Umjetna inteligencija i inteligentni sistemi Univerzitet u Sarajevu, Mašinski fakultet |
| 2000 – 2008 | Docent iz predmeta Računarska tehnika i grafika, Informacioni sistemi, Programiranje I, Programiranje II, Ekspertni sistemi i baze znanja, Umjetna inteligencija i inteligentni sistemi Univerzitet u Sarajevu, Mašinski fakultet |
| 2009 - 2010 | Predavanja i vježbe, predmeti: Informatizacija poslovnih procesa u javnoj upravi Naziv obrazovne institucije: Univerzitet u Sarajevu, Fakultet za javnu upravu, pridružena članica Univerziteta u Sarajevu |
| 2001 - 2005 | Predavanja i vježbe, predmeti: Principi programiranja Naziv obrazovne institucije: Univerzitet u Sarajevu, Prirodno-matematički fakultet |
| 2002 - 2005 | Predavanja, predmeti: Uvod u programiranje, Programiranje, Analiza i projektovanje informacijskih sistema Naziv obrazovne institucije: Univerzitet u 'Džemal Bijedić', Fakultet informacijskih tehnologija FIT Mostar |

| | |
|-------------|---|
| 2001 - 2001 | Predavanja i vježbe, predmeti: Informacijske tehnologije Naziv obrazovne institucije: Univerzitet u Bihaću, Tehnički fakultet |
| 1997 - 1998 | Lecturer, subjects: "Computational techniques", "Advance Vibrations" Computational techniques, Vibrations The University of Adelaide, Faculty of Engineering, Department of Mechanical Engineering, SA 5001 Adelaide, Australia |
| 1979 - 1988 | Profesor u srednjoškolskom centru, predmeti: Fizika, Elektrotehnika Naziv obrazovne institucije: Srednjoškolski Centar Travnik |

7. OBRAZLOŽENJE

Na osnovu materijala izloženog u ovom Izvještaju, Komisija je utvrdila sljedeće:

- kandidat je doktor tehničkih nauka,
- kandidat je proveo jedan izborni period u zvanju vanredni profesor,
- kandidat se u svom dosadašnjem radu pokazao kao uspješan naučni i stručni radnik, što je iz spiska priloženih radova i urađenih projekata evidentno vidljivo,
- kandidat ima u proteklom izbornom periodu 14 naučnih radova objavljenih u priznatim publikacijama koje se nalaze u relevantnim naučnim časopisima, od kojih su 3 substitucije za mentorstvo u citiranim bazama podataka,
- kandidat je priložio potvrdu od strane izdavača da su dva rada prihvaćena za objavu u skladu s članom 196. stav 4. Statuta Univerziteta u Sarajevu,
- kandidat je autor tri univerzitetska udžbenika, od kojih dva u periodu poslije izbora u zvanje vanrednog profesora,
- kandidat je priložio spisak više originalnih uspjeha u vidu projekata i originalnih metoda,
- kandidat je do sada s uspjehom izvodio nastavu na matičnom fakultetu i ostalim fakultetima i univerzitetima u zemlji i inostranstvu i pokazao smisao za pedagoški rad,
- kandidat ima sve moralne kvalitete za nastavničko zvanje.

8. ZAKLJUČAK

Imajući u vidu navedeno, Komisija konstatuje da kandidat van. prof. dr. Senad Burak ispunjava sve uslove propisane Zakonom o visokom obrazovanju i Statutom Univerziteta u Sarajevu za izbor u zvanje redovnog profesora, te predlaže Vijeću Mašinskog fakulteta u Sarajevu da se

van. prof. dr. Senad Burak

izabere u zvanje

redovnog profesora

za naučnu oblast **Računarsko inženjerstvo u mašinstvu.**

Sarajevo, **24.02.2020.**

KOMISIJA:

1. prof. dr. Ejub Džaferović
(predsjednik Komisije)



2. prof. dr. Dražena Gašpar
(član Komisije)



3. prof. dr. Dragi Tiro
(član Komisije)

