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NABIOLAH ABOLFATHI

Assistant Professor

Department of Biomedical Engineering

Biomechanic

Supervised MSc Theses

#	Thesis title	By	Date
1	Analysis and Sampling of a Type of Spinal Implant with Three-Dimensional Printers	Mohadeseh Sadat Shahangian & Nabolah Abolfathi	September 2021
2	Design and characterization a PLA/GRAPHENE nano-composite used in 3D-printed trans-tibial prosthetics.	Seyed Amir Hosseini & Nabolah Abolfathi	September 2020
3	Biomechanical Design And Analysis of the Bone Cement Based Scaffold By 3D Printing Method	Mohammad Arghavani Khoub & Nabolah Abolfathi	September 2020
4	Modeling to determine the parameters affecting the performance of a angioplasty balloon	Pegah Qashqai & Nabolah Abolfathi	February 2020
5	Analysing the effect of layered double hydroxides on mechanical properties of bone scaffolds	Soheil Ghazizadeh & Nabolah Abolfathi	July 2019
6	Analyzing the effect of bonding properties of layers in 3d printed bone scaffold	Nogol Nazemzadeh & Nabolah Abolfathi	February 2019
7	Design and manufacturing a microfluidic system for bioprinting application	Najme Babaie & Nabolah Abolfathi	February 2019
8	FEM analysis of a porous metallic bone graft using FDM printing method	Alan Gholam Veisi & Nabolah Abolfathi	February 2019
9	determination of the parameters affecting the performance of a biliary stent by finite element modeling	Zahra Rashed & Nabolah Abolfathi	February 2018

10	Design and fabrication of polymer / ceramic composite scaffold using three-dimensional bio-printer for bone tissue engineering applications	Naghme Rezania & Nabilolah Abolfathi	February 2018
11	Designing and manufacturing water jet to remove the burned tissue from the wound	Mahdi Motahari & Nabilolah Abolfathi	February 2018
12	Design and prototyping wearable hand robot for damaged athlete rehabilitation	Maziar Arfaee & Nabilolah Abolfathi	February 2018
13	Design and Manufacture an Electrochemical Oxygen Sensor for pO ₂ Assessment in blood	Yassaman Djafari & Nabilolah Abolfathi	February 2017
14	Analysis of whiplash injuries in low speed rear end accidents	Parya Avaznejad & Nabilolah Abolfathi	February 2017
15	Design and manufacturing a 5 DOF robot for dental prostheses manufacturing	Marziyeh Gholami & Nabilolah Abolfathi	February 2016
16	Designing and evaluating functional parameters of cerebral shunt	Parto Babaniamansour & Nabilolah Abolfathi	February 2016
17	Design and manufacturing of scaffolds with an FDM 3D printer	Amirreza Yeganegi & Nabilolah Abolfathi	February 2016
18	Designing and characterization of bioink for sample synthetic of skin tissue by bioprinter	Arezo Dadashzadeh & Nabilolah Abolfathi	December 2015
19	design and numerical modeling a disposable rotary handpiece for using in dentistry	Tohid Malekian Mallaghasem & Nabilolah Abolfathi	February 2015
20	Microwave Plasma Treatment of 3D Scaffold for Skin Culture and Evaluation of Biological Functions of Cells on it	Masoud Babaee Foroutan & Nabilolah Abolfathi	February 2015
21	Design and manufacture of an assay system by Lateral flow method with application in sport assays	Mostafa Rabbani Bidgoli & Nabilolah Abolfathi	February 2015
22	Analysis and design of sternal fixation system	Reza Yousofi & Nabilolah Abolfathi	February 2015
23	Design and fabrication of cell adhesion measuring device	Saeed Salehipour & Nabilolah Abolfathi	February 2015
24	Design and Numerical Analysis and of a Microdrop generation system for bio printing of skin cells application	Hassan Abedini & Nabilolah Abolfathi	February 2015
25	Design and fabrication of a microbioreactor to study the effects of mechanical stimulations on the cells	Majid Halvaei & Nabilolah Abolfathi	October 2014
26	optimal design and analysis of effective parameters of pressure sensor for blood pressure monitoring	Zahreh Allahmoradi & Nabilolah Abolfathi	October 2014
27	Design and fabrication of an intelligent surgical instrument equipped with artificial tactile sensing applicable in hip	Reza Kashi & Nabilolah Abolfathi	September 2014
28	Design and Fabrication of Solid Coated Microneedles for Transdermal Drug Delivery	Payam Panahi & Nabilolah Abolfathi	September 2014
29	characterization of biopaper from Fibrin based hydrogels with applications in skin bioprinting	Mohammad Sadjad Hakam & Nabilolah Abolfathi	September 2014
30	Modeling and Analysis of the Surface Roughness and Geometry on The Cell using FEM	Samaneh Ganjei & Nabilolah Abolfathi	July 2014
31	Design & manufacture of measurment system of mechanical properties of nervous cell	Farzaneh Allahverdi & Nabilolah Abolfathi	February 2014

32	Finite Element Modeling of Needle Free Jet Injection	Nima Sarrafzadeh Ghadimi & Nabilah Abolfathi	January 2014
33	Design of a Biological Chip for Diagnostic of Ion Blood Density for Precaution or Warning of Sports Injuries	Mahnaz Seddigh & Nabilah Abolfathi	January 2014
34	Development of a FEM to predict cellular adhesion force	Negin Ebrahimi & Nabilah Abolfathi	January 2014
35	Design and fabricate a centrifugal microfluidics system for separation of blood components and evaluation of effective parameters in plasma purity	Arezou Hosseinzadeh Rostamroudi & Nabilah Abolfathi	October 2013
36	Design and Analysis of an Biosensor for Measuring the Blood Viscosity	Atefeh Hafezizadeh Manshadi & Nabilah Abolfathi	October 2013
37	Molecular Dynamics Simulation of Cell Adhesion Molecules in Central Nervous System	Parnian Kianfar & Nabilah Abolfathi	October 2013
38	synthesis and characterization of biopaper from biocompatible hydrogels in bioprinting applications	Fatemeh Navaee & Nabilah Abolfathi	October 2013
39	Design, analysis and fabrication of a MEMS platform for the study of cell mechanics	Ali Mehdizadeh Rahimi & Nabilah Abolfathi	July 2012
40	Design, fabrication and characterization of a novel polymeric structure scaffold for neural tissue engineering	Shayan Shafiee Nejad & Nabilah Abolfathi	October 2011
41	Micromechanics analysis of brain injuries including cell-ECM interaction for Sport Activities	Fatemeh Moghaddam & Nabilah Abolfathi	September 2011

Journal Papers

Portal Records

- Hossein Jocar, Gholamreza Rouhi, Nabilah Abolfathi, "THE ROLE OF PDL-CEMENTUM ENTHESIS IN PROTECTING PDL UNDER MASTICATORY LOADING: A FINITE ELEMENT INVESTIGATION", JOURNAL OF MECHANICS IN MEDICINE AND BIOLOGY, August 2021 Vol. 21, Num. 215004, Page 1-15, August 2021,
- Hossein Jocar, Gholamreza Rouhi, Nabilah Abolfathi, "The Effects of Splinting on the Initial Stability and Displacement Pattern of Periodontio-Integrated Dental Implants: A Finite Element Investigation", JOURNAL OF MEDICAL AND BIOLOGICAL ENGINEERING, June 2020 Vol. 40, Num. 1, Page 719-726, June 2020,
- Anahita Ahmadi Soufivand, Nabilah Abolfathi, Seyyed Ataollah Hashemi, Sang Jin Lee, "Prediction of mechanical behavior of 3D bioprinted tissue-engineered scaffolds using finite element method (FEM) analysis", Additive Manufacturing, March 2020 Vol. 33, Num. 0, Page 1-9, March 2020,
- Anahita Ahmadi Soufivand, Nabilah Abolfathi, Seyyed Ataollah Hashemi, Sang Jin Lee, "The effect of 3D printing on the morphological and mechanical properties of polycaprolactone filament and scaffold", POLYMERS FOR ADVANCED TECHNOLOGIES, December 2019 Vol. 31, Num. 5, Page 1038-1046, December 2019,
- Rahim Faturechi, Seyyed Ataollah Hashemi, Nabilah Abolfathi, Atefeh Solouk Mofrad, "Mechanical guidelines on the properties of human healthy arteries in the design and fabrication of vascular grafts: experimental tests and quasi-linear viscoelastic model", ACTA OF BIOENGINEERING AND BIOMECHANICS, June 2019 Vol. 21, Num. 3, Page 13-21, June 2019,
- Rahim Faturechi, Seyyed Ataollah Hashemi, Nabilah Abolfathi, Atefeh Solouk Mofrad, Alexander Seifalian, "Fabrications of small diameter compliance bypass conduit using electrospinning of clinical grade polyurethane", VASCULAR, May 2019 Vol. 0, Num. 0, Page 1-12, May 2019,

- 7 Arezoo Dadashzadeh, Rana Imani, Saeid Moghassemi, Kobra Omidfar, Nabilah Abolfathi, "Study of hybrid alginate/gelatin hydrogel-incorporated niosomal Aloe vera capable of sustained release of Aloe vera as potential skin wound dressing", POLYMER BULLETIN, March 2019 Vol. 0, Num. 0, Page 1-17, March 2019,
- 8 Peyman Gholami, Mohammadali Ahmadi Pajouh, Nabilah Abolfathi, Ghassan Hamarneh, Mohammad Keyvanrad, "Segmentation and Measurement of Chronic Wounds for Bioprinting", IEEE Journal of Biomedical and Health Informatics, July 2018 Vol. 22, Num. 4, Page 1269-1277, July 2018,
- 9 Mohammad Sadjad Hakam, Rana Imani, Nabilah Abolfathi, Hossein Fakhrzadeh, Alimohammad Sharifi, "Evaluation of fibrin-gelatin hydrogel as biopaper for application in skin bioprinting: An in-vitro study", BIO-MEDICAL MATERIALS AND ENGINEERING, February 2017 Vol. 27, Num. 6, Page 669-682, February 2017,
- 10 Siamak Hajizadehfarkoush, Nabilah Abolfathi, Hormoz Mehmanesh, Siamak Najarian, "Design, Fabrication and test of a novel clamper for aortic cross-clamping in minimally invasive cardiac surgery", JOURNAL OF MECHANICS IN MEDICINE AND BIOLOGY, January 2016 Vol. 16, Num. 2, Page 1-11, January 2016,
- 11 Siamak Hajizadehfarkoush, Nabilah Abolfathi, Hormoz Mehmanesh, Siamak Najarian, "Design and finite element analysis of a novel smart clamper for aortic cross-clamping in minimally invasive surgery", MINIMALLY INVASIVE THERAPY & ALLIED TECHNOLOGIES, August 2015 Vol. 25, Num. 0, Page 15-21, August 2015,
- 12 Hassan Abedini, Saeed Movahed, Nabilah Abolfathi, "NUMERICAL SIMULATION OF PRESSURE-INDUCED CELL PRINTING", JOURNAL OF MECHANICS IN MEDICINE AND BIOLOGY, March 2015 Vol. 15, Num. 5, Page 1-11, March 2015,
- 13 Mahsa Ghaffari, Mohamad Zoghi, Mostafa Rostami, Nabilah Abolfathi, "Fluid structure interaction of traumatic brain injury : effects of material properties on sas trabeculae", International Journal of Modern Engineering, August 2014 Vol. 14, Num. 2, Page 54-61, August 2014,
- 14 Ramin Omidvar, Mohammad Tafazzoli-Shadpour, Mostafa Rostami, Nabilah Abolfathi, "Cancer mutation alters mechanical stiffness of cadherin domains: a molecular dynamics study", JOURNAL OF COMPUTATIONAL AND THEORETICAL NANOSCIENCE, May 2014 Vol. 11, Num. 10, Page 1-9, May 2014,
- 15 Majid Halvaei, Atefeh Solouk Mofrad, Nabilah Abolfathi, Nooshin Haghighipour, Mahnaz Eskandari, Mohammad Ali Shokrgozar, "Effect of Mechanical Stimulations on the Fate of Stem Cells – A Review", , December 2013 Vol. 16, Num. 3, Page 1-23, December 2013,



Conference Papers





Portal Records

- 1 Alan Gholam Veisi, Nabilah Abolfathi, Mehran Solati, "Compressive strength analogy between fabricated titanium and stainless steel composite by FDM ", Iran 3D show event & The first Additive Manufacturing Conferences, December 2018
- 2 Mahsa Karimi, Mitra Asadi-Eydivand, Nabilah Abolfathi, Mehran Solati, "The effect of gradient porosity on biological properties of bone scaffolds fabricated by fused deposition modeling ", Iran 3D show events & The first additive Manufacturing Conferences, December 2018
- 3 Naghme Rezaei, Mehran Solati, Nabilah Abolfathi, Shahin Bonakdar, Mitra Asadi-Eydivand, "design and manufacturing of polycaprolactone scaffold via fused deposition modeling for bone tissue engineering applications ", Iran 3D show events & The first additive Manufacturing Conferences, December 2018
- 4 Majid Halvaei, Mohammad Shokrgozar , Nabilah Abolfathi, Mahnaz Eskandari, Nooshin Haghighipour , Fatemeh Navaei, "Mechanical Micro-bioreactor for Cartilage Tissue Engineering ", TERMIS, December 2016
- 5 Vahideh Karbasi, Nabilah Abolfathi, Seyyed Ataollah Hashemi, Saeid Ahmadiania, "Development Of a Low - Cost Profile Scanner Using DVD Pickup head and CCD image sensor " , st Iranian Conference On Biomedical 21 Engineering (ICBME2014) , Biomedical engineering Faculty , Amirkabir University Of Technology ,(Tehran Polytechnic, November 2014
- 6 Saeed Salehipour, Nabilah Abolfathi, Seyyed Ataollah Hashemi, "Design and fabrication of cell adhesion measuring device " , 21st Iranian Conference on Biomedical Engineering (ICBME 2014), Biomedical Engineering Faculty, Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran, Nov 26-28, November 2014

- 7 Rahim Faturechi, Seyyed Ataollah Hashemi, Nabilah Abolfathi, "Design & manufacturing of a novel tensile testing machine to measure mechanical properties of the soft biological tissue ", 21st Iranian Conference on Biomedical Engineering (ICBME 2014), Biomedical Engineering Faculty, Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran, Nov 26-28,, November 2014
- 8 Saeed Salehipour, Nabilah Abolfathi, Seyyed Ataollah Hashemi, "Design and fabrication of cell adhesion measuring device ", st Iranian Conference On Biomedical 21 Engineering (ICBME2014) , Biomedical engineering Faculty , Amirkabir University Of Technology ,(Tehran Polytechnic, November 2014
- 9 Mahnaz Seddigh, Nabilah Abolfathi, Seyyed Ataollah Hashemi, "Developing a new equation for Adsorption Performance of separation micro columns Developing a new equation for Adsorption Performance of separation micro columns ", ICMEMS 2014 INTERNATIONAL CONFERENCE FOR MICRO ELECTRO MECHANICAL SYSTEMS, February 2014
- 10 Mahmoud Amirkhani, Nabilah Abolfathi, Seyyed Ataollah Hashemi, "Manufacturing a low cost valveless micropump using soft lithography for disposable drug delivery system ", ICMEMS2014 International conference for microelectro mechanical systems2014, February 2014
- 11 Arezou Hosseinzadeh Rostamroudi, Nabilah Abolfathi, Seyyed Ataollah Hashemi, "Design & manufacturing of a centrifugal microfluidic system for separation of blood particles ", ICMEMS2014 International conference for microelectro mechanical systems2014, February 2014
- 12 Parastoo Afshari, Nabilah Abolfathi, "Optimization of blood flow parameters in substrate paper for blood group detection kit. ", ICMEMS 2014 INTERNATIONAL CONFERENCE FOR MICRO ELECTRO MECHANICAL SYSTEMS, February 2014
- 13 Hassan Abedini, Farhan Khodaei, Ehsan Eslami, Nabilah Abolfathi, "Investigation of strain distribution on endothelial cell aggregate in converging micro-nozzle during cell printing ", first international conference on MEMS and Microfabrication, February 2014
- 14 Nima Sarrafzadeh Ghadimi, Nabilah Abolfathi, Seyyed Ataollah Hashemi, "Evaluation of putting a set screw for jet pressure control of needle free injection system. ", ICMEMS2014 International conference for microelectro mechanical systems2014, February 2014
- 15 Mahmoud Amirkhani, Nabilah Abolfathi, Seyyed Ataollah Hashemi, "Three dimensional analysis for a peristaltic micropump using fsi method ", ICMEMS 2014 INTERNATIONAL CONFERENCE FOR MICRO ELECTRO MECHANICAL SYSTEMS, February 2014
- 16 Mahsa Ghaffari, Kourosh Bajelani, Mostafa Rostami, Nabilah Abolfathi, "Three-dimensional Human Head Model for the Study of Traumatic Brain Injury ", The 19th Iranian Conference on Biomedical Engineering, December 2012
- 17 Mahsa Ghaffari, Mohammad Zoghi, Mostafa Rostami, Nabilah Abolfathi, "A New Approach to Model Subarachnoid Trabeculae Resistance in CSF Flow ", The 19th Iranian Conference on Biomedical Engineering, December 2012
- 18 Mahsa Ghaffari, Mostafa Rostami, Nabilah Abolfathi, Zogi, "Finite Element Modeling of Traumatic Brain Injury to Study the Role of Subarachnoid Trabeculae ", International Crashworthiness Conference, Icrash 2012, July 2012
- 19 Ramin Omidvar, Nabilah Abolfathi, Mohammad Tafazzoli-Shadpour, Mostafa Rostami, "Contactin protein role in axon-matrix adhesion property of brain tissue using molecular dynamics simulation ", 6th World Congress of Biomechanics, August 2010

Taught Courses

#	Course title	Description	Headlines	Date
1	Special Topics (Mechanics of Materials(II) and Failure Theories)	ee		Fall 2021
2	Advanced Engineering Mathematics	To learn the important concepts and method of applied mathematics for advance engineering research		Fall 2021

3	Advanced Engineering Mathematics	To learn the important concepts and method of applied mathematics for advance engineering research		Spring 2021
4	Engineering Design in Biosystems	To learn steps how to develop a new product in biomedical area		Spring 2021
5	Advanced Engineering Mathematics	To learn the important concepts and method of applied mathematics for advance engineering research		Fall 2020
6	Strength of Material (II)	To increase the knowledge of strength of materials specially on beams, columns , energy methods and failure theories		Fall 2020

Inventions/Patents

#	Invention title	Reg. number	Country	contributors	Reg. date	Exp. date
1	Semi-automated coagulometer with double determination	85449			2014/09/1	2034/09/1
2	Motion system 3D bioprinter	85142			2014/08/1	2034/08/1
3	axis dental milling machine for produce dental prosthesis	84627			2014/08/1	2034/08/1
4	A bioreactor to create pressure by using fluid flow inside cell-case	84379			2014/08/1	2034/08/1
5	Plasma processing & synthesis device by microwave	84189			2014/07/1	2034/07/1
6	Electrical drive motor micro dispenser	84462			2014/04/1	2034/04/1
7	Sink testing machine for soft example	84492			2014/04/1	2034/04/1
8	Needless injector device with adjustable pressure behind the syringe & regulation skin pre- stretch	84472			2014/03/1	2034/03/1
9	Design and fabrication of uniaxial tensile test device to measure mechanical properties of soft tissue	84699			2014/01/1	2034/01/1
10	3D bioprinter device in cylindrical coordinate system	84477			2014/01/1	2034/01/1