

Curriculum Vitae

Ziya Esen

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Education

Degree	Department/Program	University	Year
Graduate	Metallurgical and Materials Engineering	Middle East Technical University, Ankara/TURKEY (3.74/4.00)	1999
M.S.	Metallurgical and Materials Engineering	Middle East Technical University, Ankara/TURKEY (4.00/4.00)	2002
Ph.D.	Metallurgical and Materials Engineering	Middle East Technical University, Ankara/TURKEY (3.89/4.00)	2007
Associate	Metallurgical and Materials Engineering	-	2014

Academic

Title	University/Department	Year
Teaching Assistant	Middle East Technical University Metallurgical and Materials Engineering, Ankara/TURKEY	1999-2006
Instructor Dr.	Anadolu University Materials Science and Engineering, Eskişehir/TURKEY	2009-2009
Assist. Prof.	Çankaya University Industrial Engineering, Ankara/TURKEY	2009-2010
Assist. Prof.	Çankaya University Materials Science and Engineering, Ankara/TURKEY	2010-2014
Post Doc. Fellow	Waterloo University Institute for Nanotechnology, Waterloo/CANADA	2015-2016
Assoc. Prof.	Çankaya University Materials Science and Engineering, Ankara/TURKEY	2014-

Administrative

Title	University/Department	Year
Vice Chairman	Çankaya University Materials Science and Engineering, Ankara/TURKEY	2014-2015
Deputy Head of Department	Çankaya University Materials Science and Engineering, Ankara/TURKEY	2015-2015

Professional Experience

Title	Company	Year
R&D Engineer	Ün-TEKNİK Press Die Machine Machining, Ankara/TURKEY	2009-2009
Director	Titadent Medical Engineering Ltd. Company, Ankara/TURKEY	2012-2015

Scientific Skills and Research Fields

- Physical Metallurgy, Powder Metallurgy (traditional and Selective Laser Sintering (3D printing)),
- Production and surface processing (chemical methods) of metallic biomaterials (foams and composites),
- Nanomaterials synthesis (graphene derivatives (GO, rGO and rGO gel) and metal/graphene hybrid structures) using laser ablation method,
- Field Effect Transistor Biosensors (breast cancer detection),
- Surface chemistry and functionalization of biosensors,
- Microfabrication - Clean room technologies (Lithography, DRIE, Wet etching, e-beam deposition)
- Characterization Techniques (Mechanical characterization: universal mechanical testing devices; Surface: AFM, XPS; surface profiler; Structure: XRD; Spectroscopy: IR and UV – Visible Spectroscopy, FTIR, Raman; Morphology: SEM, TEM, Electrical characterization: probe stations, 4-point measurement)

Thesis Supervised

- 1) "Production and Characterization of Surface Treated Biomedical Ti6Al7Nb Alloy Foams(Co-Supervisor, Ezgi Bütev, Middle East Technical University, Metallurgical and Materials Engineering), 2012-2015.
- 2) "Surface Activation and Characterization of Porous Titanium and Ti6Al4V alloys"(Co-Supervisor, Elif Eda Yeni, Anadolu University, Materials Science and Engineering), 2013-2015.
- 3) "Synthesis and Characterization of Carbon/SiC Composites" (Co-Supervisor, Simge Tülbez, Middle East Technical University, Metallurgical and Materials Engineering), 2012-2015
- 4) "Development of Sn-based anode materials for Li-ion batteries" (Co-Supervisor, Emre Yılmaz, Middle East Technical University, Metallurgical and Materials Engineering), 2014-2015.
- 5) " Optimization of the Mechanical Properties of the Ti-6Al-4V Alloy Fabricated By Additive Manufacturing Using Thermochemical Processes" Güneş Mert Bilgin, Middle East Technical University, Metallurgical and Materials Engineering), 2014- .

Projects

- 1) "Manufacturing and Testing of Graphene-based -FETs Biosensors" Natural Sciences and Engineering Research Council of Canada, (Engage grant), (January 2016- June 2016) **Researcher.**
- 2) TÜBİTAK 112341, "Surface Activation of Porous Ti6Al7Nb Implant Alloys by Hydrothermal Methods for Biomedical Applications and Their Characterization" (November 2012-May 2015), **PI.**
- 3) Republic of Turkey Ministry of Science, Industry and Technology , TGSD 2012-059, "Production of artificial titanium dental implants with porous surface" (July 2012-June2013), **PI.**
- 4) TÜBİTAK 104M121, " Production and Characterization of pure titanium and Ti6Al4V alloy foams by powder metallurgy" (April 2005-April 2007), **Researcher.**
- 5) DPT2003K120920-15, " Production, Shaping and Characterization of TiNi Shape Memory Alloys" (May 2003-December 2005), **Researcher.**
- 6) METU SRP-2004-07-02-00-110, "Production of Ti and TiNi shape memory alloy foams by powder metallurgy" (January 2004-January 2006), **Researcher.**
- 7) METU SRP-2005-03-08-05, " Production and Characterization of Ti6Al4V alloy foams via loose powder sintering" (January 2005-December 2006), **Researcher.**

Project and Congress related tasks

- 1) The Scientific and Technological Research Council of Turkey (TÜBİTAK), 1001, 2216, 3001, 3501 projects, Panelists&consultant,
- 2) Republic of Turkey Ministry of Science, Industry and Technology, Industry-Thesis, Panelists&Project Review Expert,
- 3) Republic of Turkey Ministry of Science, Industry and Technology, Research & Development Centre, Project Review Expert,
- 4) KOSGEB, Research and Development & Innovation Support, Panelists & Project Review Expert
- 5) Scientific Research Projects, Referee (Yüzüncüyıl University, Selçuk University, Dumlupınar University, etc.)
- 6) 17th International Metallurgy and Materials Congress (IMMC 2014), Istanbul (11-13 September 2014), Heat treatment&Powder Metallurgy, Session Coordinator & Session Chair.
- 7) Çankaya University , 4th and 7th Engineering and Technology Symposium 28-29 April 2011 and 15-16 May 2014, Materials Session- Mechanical and Civil Engineering Session, Sessions' Chair.

Refereeing

- 1) Materials Science and Engineering A
- 2) Materials Letters
- 3) Applied Surface Science
- 4) Journal of the Mechanical Behavior of Biomedical Materials
- 5) Journal of Alloys and Compounds
- 6) Gazi University Journal of Science
- 7) University Scientific Journals (Çankaya University, Selcuk University)

Awards&Fellowship

- 1)Middle East Technical University, Metallurgical and Materials Engineering, 1999 graduates 1st Rank (3.74/4.00).
- 2)Tübitak Ph.D. Fellowship, 2005-2006.
- 3)Tübitak International Postdoctoral Research Fellowship Program, 2015-2016.

Publications

1-Thesis

- 1) *M.S.*
"Powder Metallurgy of CuAlNi Shape Memory Alloys", METU 2002
- 2) *Ph.D.*
"Production and Characterization of Porous Titanium Alloys", METU 2007

2- Book Chapter

1)Advances in Metallic Biomaterials: Tissues, Materials and Biological Responses, Niinomi Mitsuo, Narushima Takayuki, Nakai Masaaki (Eds.), Chapter 12: Corrosion of metallic biomaterials, Authors : Burak Dikici, Ziya Esen, Özgür Duygulu, Serap Güngör Geridonmez, pp.275-303), Springer, 2015.

3- Patent

- 1) 2009/01058 - "A production method for porous titanium and its alloys"
Tarık Aydoğmuş, Ziya Esen, Şakir Bor
TR 2009 01058 B
21.02.2012

4-Journal Articles

- 1) N. Rona, M. Yenisey, G. Kucukturk, H. Gurun, C. Cogun, Z. Esen, "Effect of electrical discharge machining on zirconia-resin bonding", Journal of Prosthodontic Research, 2016, <http://dx.doi.org/10.1016/j.jpor.2016.07.006>
- 2) Ziya Esen, Ezgi Bütev, M. Serdar Karakaş, "A comparative study on biodegradation and mechanical properties of pressureless infiltrated Ti/Ti6Al4V-Mg composites", Journal of the Mechanical Behavior of Biomedical Materials, vol. 63, pp. 273–286, 2016.
- 3) Ezgi Bütev, Ziya Esen, Şakir Bor, "Characterization of Ti6Al7Nb alloy foams surface treated in aqueous NaOH and CaCl₂ solutions" Journal of the Mechanical Behavior of Biomedical Materials, 60, 2016, 127-138.
- 4) C. Cogun, Z. Esen, A. Genc, F. Cogun, N. Akturk, "The effect of powder metallurgy Cu-B₄C composite electrodes on the performance outputs and work surface characteristics of electric discharge machining" Journal of Engineering Manufacture: Part B, 2015, 1-14.DOI: 10.1177/0954405415593049
- 5) Ezgi Bütev, Ziya Esen, Şakir Bor, "Investigation of Structural and Mechanical Properties of Alkali Treated Porous Ti6Al7Nb Alloys", Applied Surface Science, 327, 2015, 437-443.
- 6) Ziya Esen, Burak Dikici, Özgür Duygulu, Arcan F. Dericioğlu, "Titanium-magnesium based composites: mechanical properties and in-vitro corrosion response in Ringer's solution", Materials Science and Engineering A 573, 2013, 119-126.
- 7) Ziya Esen, "The Effect of Processing Routes on the Structure and Properties of Mg-TiNi Composites", Materials Science and Engineering A 558, 2012, 632-640.

- 8) Z. Esen, Ş. Bor, " Characterization of Ti6Al4V Foams Synthesized by Space Holder Technique", Materials Science and Engineering A 528, 2011, 3200-3209.
- 9) Ziya Esen, Elif Tarhan, Şakir Bor, " Characterization of Loose Powder Sintered Porous Titanium and Ti6Al4V Alloy", Turkish Journal of Engineering and Environmental Sciences, 33, 2009, 207-219.
- 10) Z. Esen, Ş. Bor, "Processing of Titanium Foams Using Magnesium Spacer Particles", Scripta Materialia, 2007; 56; 341-344.
- 11) Simge Tülbez, Ziya Esen, Arcan F. Dericioğlu, " Optimization of pyrolysis and liquid silicon infiltration parameters for the processing of C/C-SiC composites containing matrix additives" Journal of the European Ceramic Society, under review.
- 12) Ziya Esen, Ezgi Butev, " Surface characteristics and in-vitro behavior of hydrothermally treated bulk Ti6Al7Nb alloys", Surface and Coatings Technology, under review (revised).
- 13) Levent Koroglu, Ezgi Butev, Ziya Esen, Erhan Ayas, "A Novel Approach for Synthesis of Monticellite Based Bioactive Ceramic Powders from Boron Derivative Waste", Materials Letters, Under review.

6- Meetings and Symposia

6.1.International

- 1) Simge Tülbez, Ziya Esen, Arcan F. Dericioğlu, Optimization of Pyrolysis and Liquid Silicon Infiltration Parameters for the Processing of C/C-SiC Composites, 18th International Metallurgy and Materials Congress, 29 Sept. - 01 Oct. 2016, İstanbul Turkey.
- 2) Güney Mert Bilgin, Ziya Esen, Şeniz Reyhan Kuşhan Akın, Arcan F. Dericioğlu, Microstructural Refinement of Ti-6Al-4V Alloy Fabricated by Additive Manufacturing Using Thermochemical Processes, 18th International Metallurgy and Materials Congress, 29 Sept. - 01 Oct. 2016, İstanbul Turkey.
- 3) Z. Esen, M. Irannejad, I. Novodchuck, B. Wales, J. Sanderson, M. Yavuz, Synthesis and characterization of reduced graphene oxide-gold hybrid nanostructures using femtosecond laser ablation, 7th International Conference on Optical, Optoelectronic and Photonic Materials and Applications, June 12-17, 2016 Polytechnique Montréal, Montréal, Québec, Canada.
- 4) Güney Mert Bilgin, Arcan Dericioğlu, Ziya Esen, Seniz Reyhan Kushan Akin, "Optimization of the Mechanical Properties of the Ti-6Al-4V Alloy Fabricated By Additive Manufacturing Using Thermochemical Processes" TMS 2016, 145th Annual Meeting & Exhibition February 14 - 18, 2016 • Nashville, Tennessee, USA.
- 5) Ezgi Butev, Aydın Albayrak, Hande Bircan, Merve Nur Doğu, Pelin Gündoğmuş, Buse Kahyaoğlu, Ziya Esen. "Structural And Functional Characterization of Surface Treated Biomedical Ti6al7nb Alloy Foams" PPM 2015 International Porous Powder Materials, 15-18 September 2015, Çeşme, İzmir, TURKEY.
- 6) Ezgi Butev, Ziya Esen, Şakir Bor, "In-vitro studies of surface modified highly porous Ti6Al7Nb Alloys" TMS 2015 144th Annual Meeting and Exhibition, 15-19 March, Orlando, Florida, USA, 2015.

- 7) Ziya Esen, Ezgi Bte, Emre Yılmaz, "Production and Characterization of Mg-Based Composites" TMS 2015 144th Annual Meeting and Exhibition, 15-19 March, Orlando, Florida, USA, 2015.
- 8) Elif Eda Yeni, Ezgi Bte, Emre Yılmaz, Ziya Esen, Servet Turan, "Surface Treatment and Characterization of the Ti6Al4V Alloy Powders for Biomedical Applications", IMMC 2014, Istanbul, Turkey,
- 9) Ezgi Bte, Elif Eda Yeni, Emre Yılmaz, Ziya Esen, Şakir Bor, "Characterization of Apatite Formation Ability of Alkali Treated Bulk Ti6Al7Nb Alloy by in-vitro Studies", IMMC 2014, Istanbul, Turkey.
- 10) Ziya Esen, "TiNi Reinforced Magnesium Composites by Powder Metallurgy", TMS2011, 140th Annual Meeting&Exhibition, February 27-March 3, 2011, San Diego, California USA, pp. 457-462.
- 11) Ziya Esen, Arcan F. Dericiođlu, Şakir Bor, "Biyomedikal Uygulamalar iin Ti-Mg Kompozitlerin Geliřtirilmesi" 6. International Powder Metallurgy Conference and Exhibition, 5-9 Ekim 2011 ODT-Ankara, pp. 163-169
- 12) Z. Esen, E. Tarhan, K. Aydınol, Ş. Bor, "Su verilmiř Ti6Al4V Alařımında yařlandırma sırasında mikroyapısal geliřimi", 12th International Metallurgical and Materials Congress and Fair, Turkey, 2005, pp. 1745-1751.
- 13) Z. Esen, E. Tarhan, Ş. Bor, "Biyomedikal amalı gzenekli titanyum ve Ti6Al4V alařımı retimi", 12th International Metallurgical and Materials Congress and Fair, Turkey, 2005, pp. 204-211.
- 14) Z. Esen, B. gel, Ş. Bor, "Cu-Al Alařım sisteminde sinterleme sırasında gzenek oluřumu", 12th International Metallurgical and Materials Congress and Fair, Turkey, 2005, pp. 332-339.
- 15) Z. Esen, B. gel, Ş. Bor, "Toz metalurji yntemiyle bakır bazlı Őekil bellekli alařımların retimi", 11th International Metallurgical and Materials Congress, Turkey, 2002, pp. 1637-1642.
- 16) Ziya Esen, Burak Dikici, zgr Duygulu, "Investigation of Ti-based Composites and Porous Materials Designed for Biomedical Applications", International Conference on Processing & Manufacturing of Advanced Materials, Dec 2-6, 2013, Rio Hotel, Las Vegas, USA, pp.176-177. *Invited Speaker*
- 17) Ezgi Bte, Ziya Esen, Şakir Bor, "Surface Activation of Porous Ti6Al7Nb Scaffolds", International Conference on Processing&Manufacturing of Advanced Materials, Dec 2-6, 2013, Rio Hotel, Las Vegas, USA, pp.120.
- 18) Ziya Esen, Şakir Bor "Investigation of Structure and Mechanical Property Relationship of Porous Titanium and Titanium Alloys" TMS2012, 141st Annual Meeting&Exhibition, Mart 11-15 Orlando,Florida, USA., pp452.

6.2.National

- 1) Ziya Esen, "Production and mechanical characterization of biomedical Ti6Al4V alloy foams", 3rd Engineering and Technology Symposium, ankaya niversitesi, Ankara, Turkey, April 2010, pp. 199-207.

7- Poster

- 1) Elif Eda Yeni, Ziya Esen, Servet Turan, "Comparison of Apatite Deposition on the Surface of Titanium and Ti6Al4V Alloy Powders" TMS 2015 144th Annual Meeting and Exhibition, 15-19 March, Orlando, Florida, USA, 2015.
- 2) Ezgi Büttev, Elif Eda Yeni, Emre Yılmaz, Ziya Esen, Şakir Bor, "Effect of Alkali Treatment Parameters on Surface Structures and Mechanical Properties of Porous Ti6Al7Nb Scaffolds", IMMC, Istanbul, TURKEY, 2014.
- 3) Ziya Esen, Duygu Katırcı, "Production of artificial dental implants with high osseointegration property" Metallic Ideas, 1st Research and Development Project Bazaar, İSTANBUL, TURKEY, 31 October 2012.
- 4) Ezgi Büttev, Ziya Esen, "Manufacturing and Characterization of Titanium, Ti6Al4V and Ti6Al7Nb Alloy Dental Implants with highly Porous Surfaces", 5th International Symposium of Advanced Protocols in Oral Implantology, Antalya, TURKEY, April 20/23 , 2013.
- 5) Ziya Esen, Duygu Katırcı, "Production of Artificial Dental Implants", Türkiye inovasyon haftası, İSTANBUL, TURKEY, 6-8 Aralık 2012.

Courses Taught

Academic Year	Semester	Course Name	Hours/week		Number of students
			Theoretical	Lab./Recitation	
2008-2009	Spring	Metallic Materials (Anadolu Uni.)	4	-	42
	Spring	Materials Science and General Chemistry	3	2	77
	Summer	Materials Science and General Chemistry	3	2	23
2009-2010	Fall	Introduction to Engineering Thermodynamics	3	-	88
	Fall	System's Analysis	2	-	8
	Spring	Materials Science and General Chemistry	3	2	75
	Spring	System's Design and Implementation	2	-	8
2010-2011	Fall	Introduction to Engineering Thermodynamics	3	-	87
		Manufacturing Processes	2	2	55
		System's Analysis	2	-	9
	Spring	Materials Science and General Chemistry	3	2	69
		System's Design and Implementation	2	0	9
Summer	Materials Science and General Chemistry	3	2	22	
2011-2012	Fall	General Physics for Engineering I	4	2	70
	Spring	General Physics for Engineering II	4	2	41
		Materials Science and General Chemistry	3	2	36
2012-2013	Fall	General Physics for Engineering I	4	2	45
		Materials Science I	2	2	2
		Introduction to Materials Science	3	2	6
	Spring	Materials Characterization I	2	4	2
		Engineering Materials	3	-	6
		Physics II	4	2	55

2013-2014	Fall	Introduction to Materials Science	3	2	34
		Phase Diagrams	3	-	3
		Diffusion in Solids	2	2	3
	Spring	Materials Science and General Chemistry	3	2	36
		Kinetics and Microstructural Evolution	2	2	4
		Materials Characterization I	2	4	18
2014-2015	Fall	Introduction to Materials Science	3	2	50
		Materials Science for Electronics Engineers	3	0	20
		Phase Diagrams	3	0	13
2014-2015	Spring	Materials Characterization I	2	4	18
		Kinetics and Microstructural Evolution	2	2	13
		Materials Science and General Chemistry	3	2	29
2016-2017	Fall	Materials Science for Electronics Engineers	3	0	50
		Electronic, Optical and Magnetic Materials and Devices	3	0	16
		Phase Diagrams	3	0	23
		Innovative Engineering Analysis and Design	1	2	4

Citations

- Articles are cited 146 times (by June 2016).

Computer Skills

- Microsoft Office, Turbo Pascal, Mathcad, L-Edit, Sigma Plot, Origin, Casa XPS.

Language Skills

- Fluent in English (Oral, written and reading), German (Beginner).