



## DARWIN SEBAYANG

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### A. PERSONAL IDENTITY

1	Full Name	Prof. (Em.) Dr. Ing. Ir. Darwin Sebayang
2	Gender	Male
3	Academic Position	Lector
4	NIP/NIK	100760246
5	NIDN	0322084902
6	Place & Date of Birth	Cane City, 22/08/1949
7	E-mail Address	d_sebayang@hotmail.com
8	Mobile Number	+6287871487384
9	Office Address	Mechanical Engineering, Engineering Faculty, Universitas Mercu Buana Jl. Meruya Selatan No. 01, Kembangan, West Jakarta 11650
10	Phone / Fax Number	Phone: +6221-5840816 (Hunting), Ext: 5200 Fax: +6221-5871335
11	Graduates have been produced	Bachelor Degree = 80 students; Master Degree = 15 students; Doctoral Degree = 0 students;
12	Subjects of Teaching	<p><b><u>Universitas Mercu Buana</u></b> (2014 - Now)</p> <ul style="list-style-type: none"> <li>- Product Design</li> <li>- Methode of Research</li> </ul> <p><b><u>Universiti Tun Hussein Onn Malaysia</u></b></p> <p>Faculty of Engineering Technology (FTK)</p> <p><b>Undergraduate:</b></p> <ol style="list-style-type: none"> <li>1. Material Science -BNR 10102 and BNJ10602) (2012, 2013, 2014)</li> <li>2. Solid Mechanics – BNJ10403 (Sem II, 2013/2014)</li> <li>3. Material for Textile BNH10102 (Sem II, 2012/2013)</li> <li>4. Creativity and Innovation (Sem I, 2012/2013)</li> </ol> <p><b>Faculty of Mechanical and Manufacturing Engineering (FKMP)</b></p> <p><b>Diploma:</b></p>

1. Engineering Design and Industry –DDT 3013 (Sem II 2005/2006)
2. System Engineering – DKM 3213 (Sem II 2005/2006)

**Degree**

1. Mechanical Engineering Design -BDA 4023 ( 2006-2011)
2. Mechanical Engineering Design II-BKM 4313 (Sem I 2006/2007)
3. Manufacturing Design and CAE -BTM 4313E (Sem I 2005/2006 and Sem II 2004/2005)
4. System Engineering Design – BTM 3043- BKM 5012 (Sem I 2006/2006 to Sem I 2004/2005)
5. Fluid Power –BKM 5083 ( Sem II 2001/2002 to Sem II 2005/2006)
6. Manufacturing Technology (Sem II 2002/2003)
7. Production Technology ( Sem I 2002/2003)
8. Technology Workshop ( Sem I 2001/2002)
9. Engineering Laboratory ( Sem I 2002/2003)
10. Solid Mechanics ( Sem II 2001/2002)

**Postgraduate:**

1. Fracture Mechanics/ Failure Analysys- MMV 1303 ( Sem I 2004/2005 to Sem I 2009/2010)
2. Advance Composite MKM 2203 (Sem II 2006/2007)

**Universitas Sains Malaysia (Part Time)**

1. Aerospace Structure ( Sem II 2004/2005)
- Parttime Teaching during active in National Institute for Aeronautic and Space /Lembaga Penerbangan dan Antariksa Nasional (LAPAN) – Indonesian Space Agency

**Universitas Suryadarma/ College on Aeronautical Technology)**

1. Aircraft Construction II ( Sem I 2000/2001 an Sem I 1999/2000)
2. Aircraft Construction I ( Sem II 1997/1998 to Sem I 2000/2001)
3. Vibration in Light Structure ( Sem II 1999/2000, Sem II 1998/1999, Sem II 1997/1998)
4. Structure Mechanics ( Sem I 1999/2000, Sem I 1998/1999, Sem I 1997/1998)
5. Aeroelasticity ( Sem I 2000/2001, Sem I 1999/2000, Sem I 1998/1999)

**Universitas Gunadarma**

1. Mechanical Vibration ( Sem I 2000/2001, Sem II 1999/2000, Sem I 1998/1999)

		<p>2. Finite Element Method ( Sem II 1999/2000)</p> <p><b><u>Universitas Jayabaya</u></b></p> <p>1. Matrix Method in Structure Analysis ( Sem I 1997/1998 to Sem II 2000/2001)</p> <p>2. Strenght of Material ( Sem I 1999/2000 and Sem I 1998/1999)</p> <p>3. Composite Material (Sem I 1997/1998)</p> <p><b><u>Universitas Indonesia (Post Graduate)</u></b></p> <p>1. Theory of Elasticity ( Sem I and II 1999/2000)</p> <p><b><u>Universitas Mercu Buana</u></b></p> <p>1. Finite Element Method ( Sem II 1997/1998 to Sem II 2000/2001)</p> <p>2. Manufacturing Technology ( Sem II 1997/1998 to Sem II 2000/2001)</p> <p><b><u>Universitas Negeri Jakarta (Education)</u></b></p> <p>1. Fluid Mechanic I and II ( 1979- 1985 )</p> <p>2. Production Technique I and II ( 1979-1985)</p> <p>3. Material Handling Equipment ( Sem I and II 1979/1980)</p> <p>4. Air Conditioning ( Sem I and II 1979/1980)</p> <p><b><u>Universitas Muhammadiyah Jakarta</u></b></p> <p>1. Engineering Material ( Sem I 1996/1997 to Sem II 2000/2001)</p> <p>2. Finite Element Method ( Sem II 1998/1999, Sem II 1997/1998)</p> <p>3. Pneumatic and Hydroulic ( Sem II 1998/1999)</p> <p>4. Machine Element ( Sem I 1996/1997)</p> <p>5. Material Science I and II ( 1978- 1985)</p> <p>6. Production Technique I and II ( 1978-1985)</p> <p><b><u>Sekolah Tinggi Perkapalan Mahajaya (College of Marine Technology- Mahajaya)</u></b></p> <p>1. Fluid Mechanics (1982-1983)</p> <p>2. Material Science ( 1982-1983)</p>
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## B. EDUCATIONAL BACKGROUND

	S-1	S-2/Non Degree	S-3
<b>Name of University</b>	Universitas Sumatera Utara (USU)	Institut Teknologi Bandung	RWTH-Acchen, Jerman
<b>Field</b>	Mechanical Engineering	Rocket Technology	Mechanical Engineering, Konstruksi Ringan

<b>Year of Enrollment and Graduation</b>	- 1976	1977-1978	1996/1997
<b>The Title of Thesis or Disertation</b>	Perancangan Motor Bakat Pembangkit Stone Crusher	Perancangan Struktur Sounding Roket	With Dissertation entitled: Ein Beitrag zur Aufstellung und Loesung der Statik and Stabilitaetsgleichungen der Anisotropen Duenwandigen Zylinderschale mit Hilfe der Uebertragungsmatrizen - in Germany (A Contribution to derive and solve of the Static and Stability of Anisotropic Thin-Walled Cylinder with the Help of Transfer Matrix), 1996
<b>Name of Adviser</b>		Prof. Dr. Harijono Djodihardjo	Prof. Dr.ing. Huba Oery Prof. Dr.Ing. H. Reimerdes

**C. RESEARCH EXPERIENCE IN THE LAST 5 YEARS (NOT THESIS AND DISERTATION)**

<b>No.</b>	<b>Year</b>	<b>Research Title</b>	<b>Funding</b>	
			<b>Source*</b>	<b>Total</b>
1	2016-2019	Pengembangan Baterai Aluminium Udara Berbasis Polimer Hidrogel dan Matrix Sol_gel	Universitas Mercu Buana	300.000.000 Rp
2	2015	Pengembangan CNC 3-Axis dengan Metoda Pahl dan Betz	Universitas Mercu Buana	3,500 Rp
3	2013-2016	New Washcoat of gamma – Alumina Nanocrystalline on New Oxide (Ni) Catalyst in FeCrAl Substrate for Catalytic Converter	Fundamental Research Grant Scheme - FRGS Malaysia	RM .116.000
4	2011- 2013	The Novel Continues Biodiesel Process using Ultrasound Clamp On Tubular Reactor	Prototype Research Grant Scheme - PRGS Malaysia	RM 150.000
5	2011-2013	Biodiesel Production Based on Waste Cooking Oil: Promotion of the Establishment on the	Knowledge Transfer Program - KTP	RM 110.000

		Integrated Sustainable Industry at Chip Crackers Factory in Batu Pahat	VOT 0891, Malaysia	
4	2010-2012	The Development of Semi Empirical Aerodynamics Formulation for an Aircraft Fuselage through Wind Tunnel Test I	Fundamental Research Grant Scheme - FRGS VOT 0723, Malaysia	RM 40.000
5	2010-2012	New Process of Developing Nanocrystalline FeCr for Fuel Cell Application	Fundamental Research Grant Scheme – FRGS VOT 0759, Malaysia	RM 100.000
6	2007-2009	Design of New Cutting Tool Geometry For High Speed Drilling of Titanium Alloy	A Competitive Research awarded from Ministerium of Science and Technology Malaysia	RM 150.00
7	2009-2011	Project Leader: A Sonochemistry Approach for a New Process of Biodiesel Production from Jatropha Curcas	Competitive Research awarded by University Tun Hussein Onn Malaysia	RM 80,000
8	2015	Pengembangan CNC- 3 Axis dengan Metoda Pahl and Betz	Universitas Mercu Buana	Rp. 3500.000

#### D. SOCIAL DEDICATION EXPERIENCE IN THE LAST 5 YEARS

No.	Year	Social Dedication Title	Funding	
			Source*	Total (Million Rp)
1	2015	Invited Speaker pada Seminar Nasional Dirgantara	LAPAN	
2	2015	Pelatih “ Strategi Mendapatkan Dana Penelitian”	Universitas Panca Budi	
3	2015	Kajian Potensi Energi Alternatif untuk Pengembangan Energi Hybrid di Kabupaten Kebumen.	Pemerintah Jawa Tengah	70.000
4	2015	Pelatihan Pembuatan Produk Kreatif dan Bungkus Kopi untuk Ibu – Ibu Posyandu Kel. Meruya Selatan Kecamatan Kembangan	UMB	3500

		Jakarta Barat		
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#### E. PUBLICATION OF JOURNAL ARTICLE IN THE LAST 5 YEARS

No.	Article Title	Name of Journal	Volume/ Number/Year
1	Development of solid-state reference electrode based on sodium polyanethol sulfonate immobilized on cellulose acetate	Journal Physical Science	JPS –OA-16-0019.R2
2	Biodiesel Production from Waste Cooking Oil by using Ultrasonic Tubular Reactor	International Journal of Innovation in Mechanicals Engineering & Advanced Materials	Vol.2 (No.1).2016.
3	Effect of Annealing on Magnetic and Structural Properties of The Nanocrystalline Fe-Mn-Al Alloys	International Journal of Innovation in Mechanicals Engineering & Advanced Materials	Vol.2 (No.1).2016.
4	Effect of Annealing Temperature and Pressure on Magnetic and Structural Properties of Fe <sub>80</sub> Cr <sub>20</sub> Alloy Powder Kontan Tarigan, Darwin Sebayang, Seong Cho Yu	Accepted paper in Advanced Materials Research (AMR Journal)	
5	Effect of Cr to Fe on Solid Solubility, Lattice Parameter and Strain of Fe <sub>80</sub> Cr <sub>20</sub> Alloy Powder Dafit Feriyanto, M.I. Idris, Darwin Sebayang	Journal of Applied Mechanics and Material	Vol. 660 (2014), pp. 280-284
6	The Effect of Ultrasonic Treatment on Oxidation Resistance and Microstructure of Fe <sub>80</sub> Cr <sub>20</sub> Alloy Powder at High Temperature Process Dafit Feriyanto, M.I. Idris, Darwin Sebayang	Journal Material Research	Vol. 1087 (2015) pp. 126-130
7	Sonochemistry Approach to Reducing Biodiesel Reaction Time from Jatropha Curcas Oil by Ultrasound on Tubular Reactor Achmad Pratiyanto, Egi Agustian, Yanuandri Putrasari, Darwin Sebayang, Anika Zafiah M. Rus, Sulaiman Hasan and Puji Untoro	Energy Procedia, Elsevier	68 (2015) pp. 480-489
8	Comparison of high temperature oxidation of Nanocrystalline FeCr alloy consolidated by spark plasma sintering and hot pressing	World Journal of Engineering	11(2) (2014) 123-130

	D. Sebayang, Deni S. Khaerudini, M.A. Othman, S. Hasan, S. Mahzan, D. Fredrick, T. Sujitno and P. Untoro		
9	Microstructure on FeCr Based Alloy added with Yttrium Oxide (Y <sub>2</sub> O <sub>3</sub> ) prepared via Ultrasonic technique Dafit Feriyanto, Maizlinda Izwana Idris, Darwin Sebayang, Puji Untoro, Mohd. Asraf Othman,	Journal of Applied Mechanics	2013
10	Thermal Stability of nanostructured iron-chromium alloys for interconnect application of solid oxide fuel cell D.S. Khaerudini, D. Sebayang, S. Mahzan, P. Untoro,	Corrosion Engineer Science and Technology, 2011, Impact Factor 0.54	2011
11	Oxidation resistance of unimplanted and implanted of nanocrystalline FeCr alloys and commercial alloy with lanthanum Deni S. Khaerudini, D. Sebayang, H. Saryanto, B. Omar, M. A. Othman, A. Hamid, T. Sujitno, and P. Untoro.	J. Adv. Microsc. Res.	6, 263-277, 2011 ISSN: 2156-7573
12	Improved oxidation resistance of nanocrystalline lanthalam –implanted FeCr alloy Deni S. Khaerudini, M.A. Othman, S. Mahzan, P. Untoro, D. Sebayang	Procedia Engineering	2011
13	Solid Oxide Fuel Cell Performance with Developed FeCr Alloy Interconnect Deni S. Khaerudini, Mohd. Asraf Othman, Shahrudin Mahzan, Daniele Fredrick, Tjipto Sujitno, Puji Untoro, D. Sebayang	Lecture Note in Electrical Engineering (LNEE 133)	1876-1100.12/2011, 2 679-684, 2011
14	Oxidation Behaviour of Ion-Implanted Nanocrystalline Fe-Cr Alloy Fabricated by Different Densification Techniques: Spark Plasma Sintering and Hot-Pressing D. Sebayang, Deni S. Khaerudini, H. Saryanto, M.A. Ithman, Sulaiman Hassan	World Journal of Engineering (WJOE).	ISSN: 1708-5284, 2011
15	Effect of Nanocrystalline and Ti Implantation on the Oxidation Behaviour of Fe <sub>80</sub> Cr <sub>20</sub> Alloy and Commercial Ferritic Steel Darwin Sebayang, Deni S. Khaerudini, Hendi Saryanto, M.A. Othman, T. Sujitno, Puji Untoro	Key Engineering Materials	Vols. 474-476 (2011) pp. 2134-2139. ISSN: 1662-7482. (Impact Factor: 0.224), 2011
16	Microstructure and Mechanical Properties of Nanocrystalline FeCr Alloy Prepared by Spark Plasma Sintering Darwin Sebayang, Deni S. Khaerudini, Hedy Saryanto, M.A. Othman, Mat Husin Saleh, D. Fredrick, Puji Untoro	Applied Mechanics and Materials	Vols. 52-54 (2011) pp. 2197-2202. ISSN: 1662-7482. (Impact Factor: 0.15), 2011
17	Ni layer evolution of FeCrAl Substrate	Advanced	Vols. 181-182

	Treated by Ultrasonic and Electroplating Methods in Long Term Oxidation at 9000C D. Sebayang, Y. Putrasari, A. Firdianto, S. Hassan, M.A. Othman, P. Untoro ,	Materials Research	(2011) pp. 501-506. ISSN: 1662-8985. (Impact Factor: 0.2334)
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## F. SCIENTIFIC SEMINAR SPEAKERS (ORAL PRESENTATION) IN THE LAST 5 YEARS

No.	Name of Seminar	Article Title	Time and Place
1	Proceedings ICCAR 2015, IEEE : CFP151WZ-CDR	Investigation on Application of Fuzzy and PID Algorithm In The Two Wheeled Robot with Self Balancing System Using Microcontroller Adik S. Wardoyo, Hendi S, Darwin Sebayang, Imam Hidayat, Andi Ardiansyah	Singapore, 2105
2	Seminar Hasil Penyelidikan Sektor Pengajian Tinggi	New Process of Developing Nanocrystalline FeCr for Fuel Cell Application Darwin Sebayang, Maizlinda Izwana Asraf Othman, Dafit Feriyanto, Deni S. Khaerudini, Hendi Saryanto	Sintok, 2013
3	Seminar Hasil Penyelidikan Knowledge Transfer Program	Biodiesel Production based on waste cooking oil Darwin Sebayang, Nor Hazwani, Sulaiman bin Hassan	Putrajaya, 2013
4	2nd International Conference on Mechanical and Manufacturing Engineering (ICME)	A Comparative Study of the Influence of Reactive Element Treated by Sputter Coating and Ion Implantation on the Oxidation Behaviour of Commercial Ferritic Alloy Deni S. Kharudini, D. Sebayang, H. Saryanto, M.A. Othman, T. Sujitno, P.Untoro , 2011),	PICC, Putrajaya, Malaysia, 2011

## G. WORK BOOK IN THE LAST 5 YEARS

No.	Book Title	Year	Number of Pages	Publisher
1	Proses Desain Elemen Mesin Menggunakan SolidWork	2015	368	Andi
2	Electroplating Darwin Sebayang, Sulaiman bin H. Hassan ,	2012	166	In. Tech Publisher
3	Preparation of NiO Catalyst on FeCrAl Substrate through Combination of Electroplating, Ultrasonic Treatment and Oxidation Process Darwin Sebayang, Yanuandri Putrasari, Sulaiman Hassan, M.A. Othman, Puji Untoro	2013 Book Chapter in Electroplating edited by Darwin Sebayang and Sulaiman Hassan	20	In. Tech Publisher

## H. ACQUISITION IPR IN THE LAST 10 YEARS

No.	Title / IPR Theme	Year	Type	P/ID Number
1	A Process of Producing Fatty Acid Alkyl Ester	2014	Patented in Malaysia	PI 2013702355
2	A Metal – Air Batteries from Solid Waste	2016	Registered Patent	C00201601262

## I. EXPERIENCE FORMULATING PUBLIC POLICY / SOCIAL ENGINEERING IN THE LAST 10 YEARS

No.	The Title/Theme/Type of Other Social Engineering That Has Been Applied	Year	Place of Applied	Social Response
1	Penerapan Outcome Based Education di Prodi Teknik Mesin , UMB	2015-2016	Universitas Mercu Buana	Sangat Baik

## J. ACHIEVEMENTS IN THE LAST 10 YEARS ( FROM GOVERNMENT, ASSOCIATION OR OTHER INSTITUTION)

No.	Awards Type	Given By	Year
1	<i>On Line Monitoring Control, under VOT at KUiTTHO,</i>	Higher Education Exhibition (National, in IPTA R& D EXPO IPTA 2005, Malaysia, Bronze Medal, 2005	2005
2	<i>Interactive Virtual Lab,</i>	Higher Education Exhibition (National, in IPTA R& D EXPO IPTA 2005, Malaysia, Bronze Medal, 2005	2005
3	Bronze Medal A Novel Pilot Plant Using Sonochemistry Approach for Biodiesel Production Darwin Sebayang, Sulaiman Hasan, Anika bt. Mohd. Idrus, Achmad Praptijanto, Egi Agustian,	Higher Education Exhibition, Malaysia Pecipta	2011
4	<i>Apparatus for Producing a Spiral Catalyst Substrate (Cor-Ral Tool</i>	), International Exhibition ITEX 2009, Malaysia, Silver Medal,2009	2009
5	Metal – Air Batteries from Solid Waste Sagir Alva, I Gusti Ayu Arwati, Darwin Sebayang, Pardan, Muhammad Fazri, Guntur Adytya Putra, Riyan Hadi Purnama, Hadi Fahmi Wijaya	Malaysian Invention and Design Society , ITEX Gold Metal	2016
6	Metal – Air Batteries from Solid Waste Sagir Alva, I Gusti Ayu Arwati,	Hongkong Invention Association	2016

	Darwin Sebayang, Pardan, Muhammad Fazri, Guntur Adytya Putra, Riyan Hadi Purnama, Hadi Fahmi Wijaya		
7	Metal – Air Batteries from Solid Waste Sagir Alva, I Gusti Ayu Arwati, Darwin Sebayang, Pardan, Muhammad Fazri, Guntur Adytya Putra, Riyan Hadi Purnama, Hadi Fahmi Wijaya	World Invention Intellectual Property	2016
8	Metal – Air Batteries from Solid Waste Sagir Alva	Bronze, 2016 Kaohsiung International Invention and Design	
9	Metal – Air Batteries from Solid Waste Sagir Alva	Special Award for International Invention – National Research Council of Thailand, 2016 Kaohsiung International Invention and Design	
10	Metal – Air Batteries from Solid Waste Sagir Alva	Special Award – Malaysian Research and Innovation Society , 2016 Kaohsiung International Invention and Design	
11	Speed Limiter Integrated Fatigue Analyzer (SLIFA) Diesel Engine for Truck and Bus	Gold, 2016 Kaohsiung International Invention and Design	
12	Speed Limiter Integrated Fatigue Analyzer (SLIFA) Diesel Engine for Truck and Bus	Special Award-Honor of Invention from SVS Inovations Center, 2016 Kaohsiung International Invention and Design	