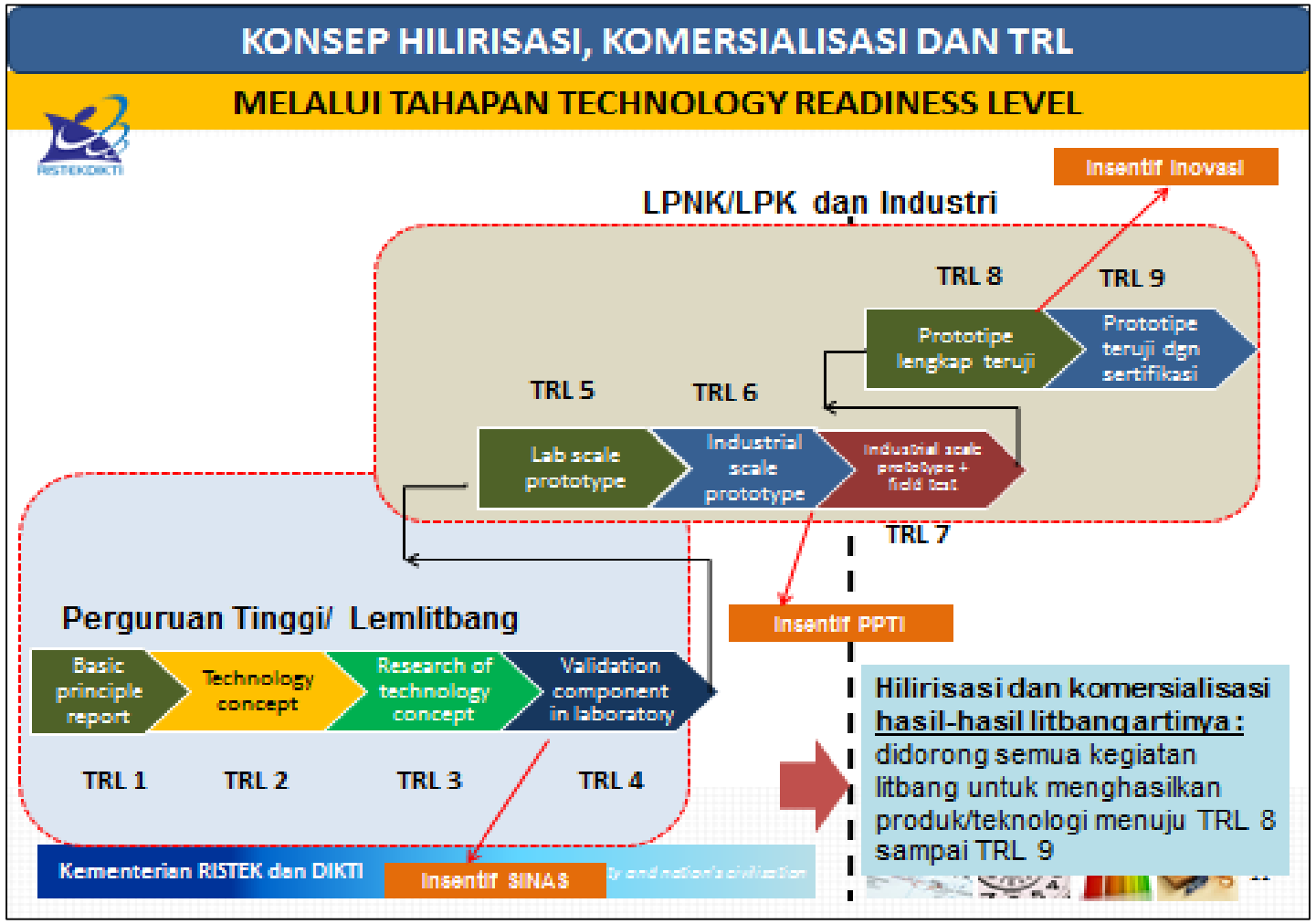
Pendekatan Pengembangan Teknologi Terapan Menuju "Techno Park" melalui "Knowledge driven', Technology driven" dan "market driven"

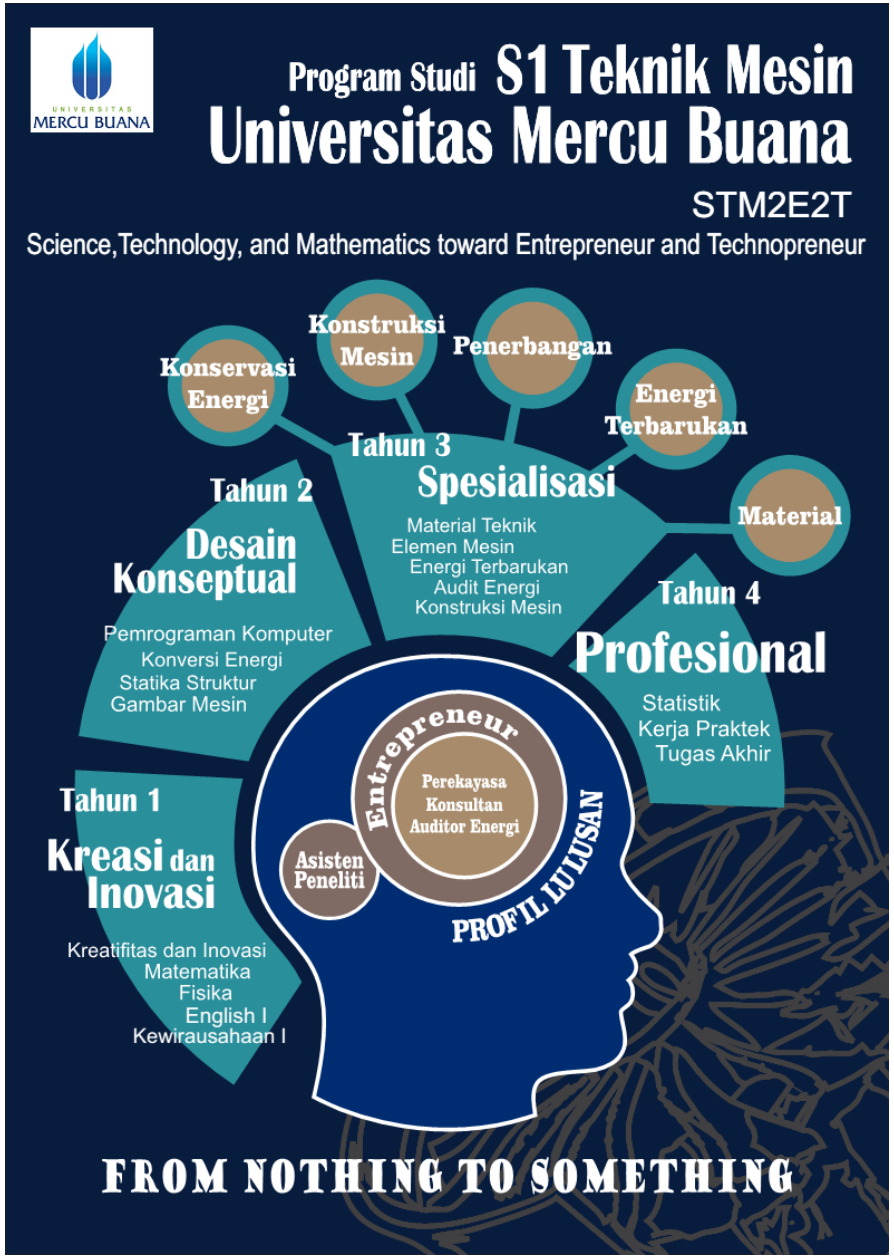
- Darwin Sebayang

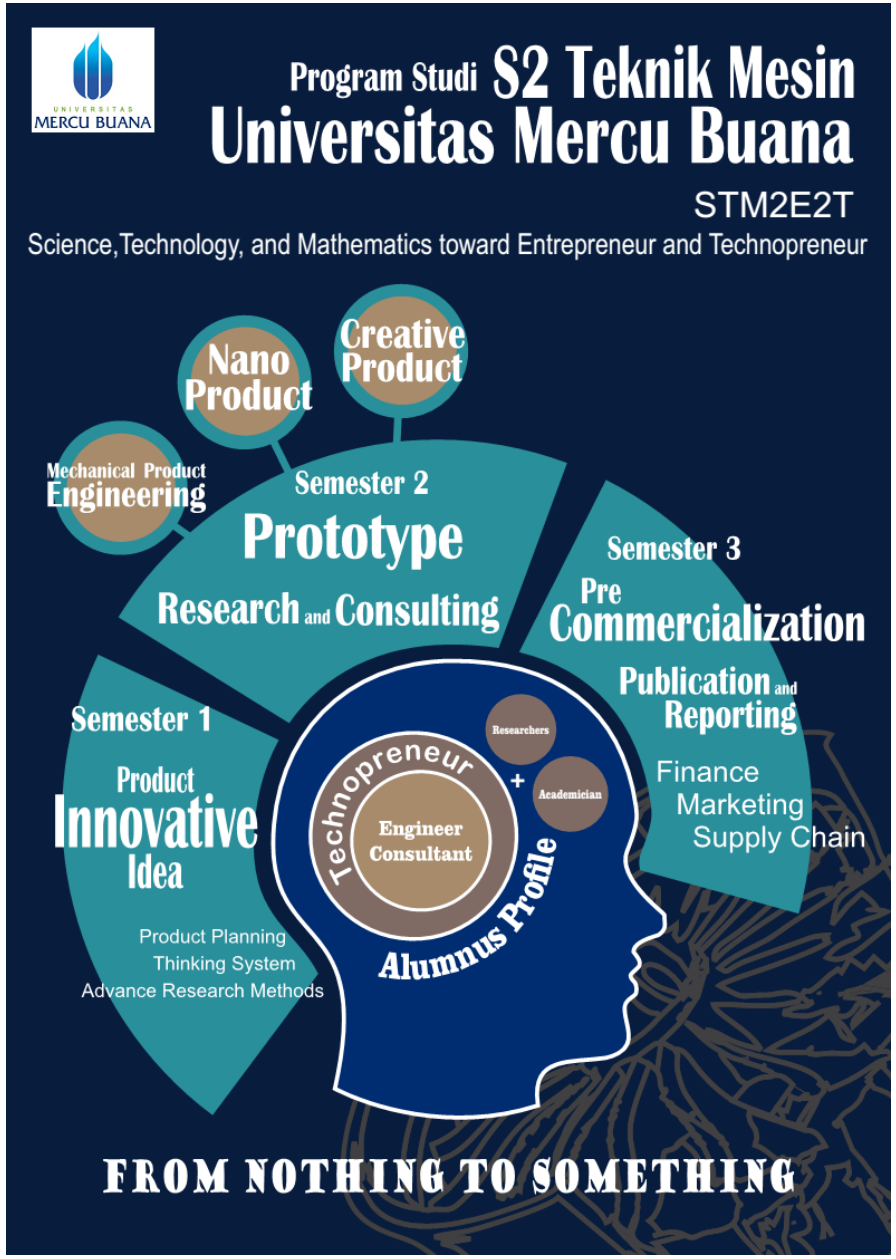
- Seminar Teknologi Terapan
- Ikatan Alumni Fakultas Teknik Universitas Sumatera Utara
- Jakarta, 19 Augustus 2017

- Daftar Isi
- 1. Pendahuluan
- 2. Pendekatan
- 3. Hasil
- 4. Kesimpulan
- 5. Daftar Pustaka

1. Pendahuluan



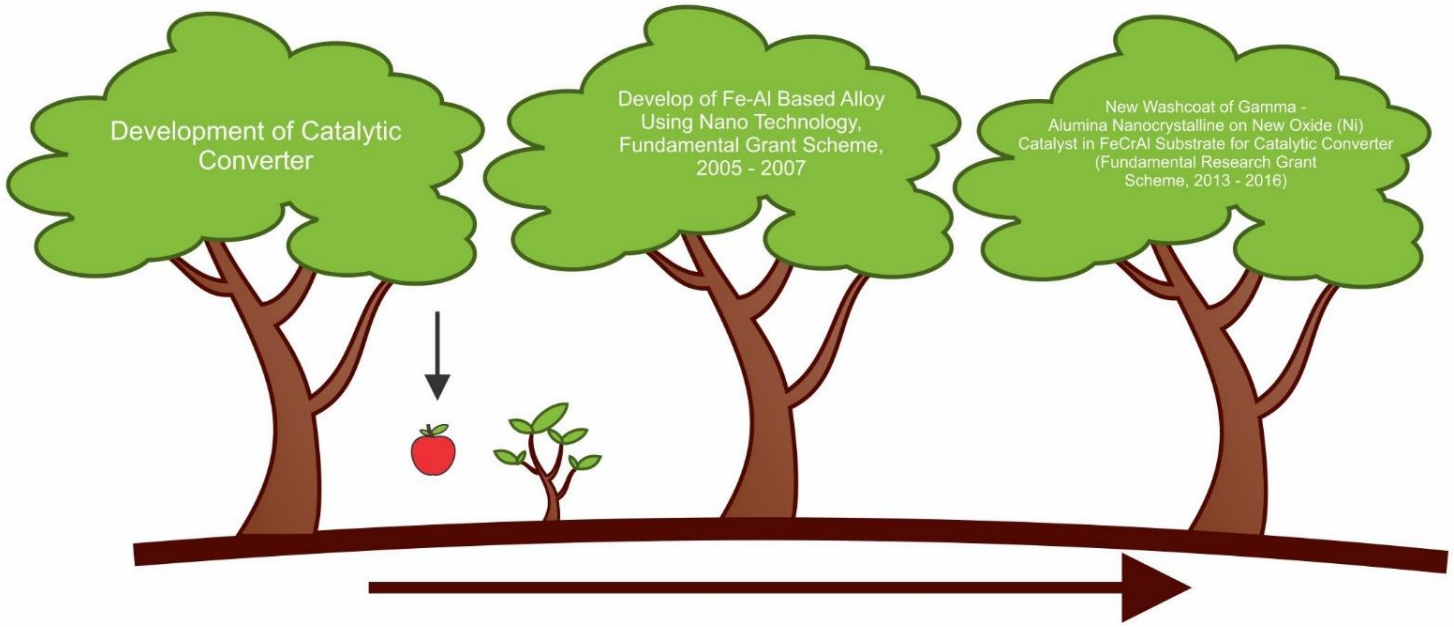

Program Studi S1 Teknik Mesin
Universitas Mercu Buana
STM2E2T
Science,Technology, and Mathematics toward Entrepreneur and Technopreneur
Konservasi Energi
Konstruksi Mesin
Penerbangan
Energi Terbarukan
Material
Tahun 3
Spesialisasi
Material Teknik
Elemen Mesin
Energi Terbarukan
Audit Energi
Konstruksi Mesin
Tahun 2
Desain Konseptual
Pemrograman Komputer
Konversi Energi
Statika Struktur
Gambar Mesin
Tahun 4
Profesional
Statistik
Kerja Praktek
Tugas Akhir
Tahun 1
Kreasi dan Inovasi
Kreatifitas dan Inovasi
Matematika
Fisika
English I
Kewirausahaan I
Entrepreneur
Perekayasa
Konsultan
Auditor Energi
Asisten Peneliti
PROFIL LULUSAN
FROM NOTHING TO SOMETHING


Program Studi S2 Teknik Mesin
Universitas Mercu Buana
STM2E2T
Science,Technology, and Mathematics toward Entrepreneur and Technopreneur
Nano Product
Creative Product
Mechanical Product Engineering
Semester 2
Prototype
Research and Consulting
Semester 3
Pre Commercialization
Publication and Reporting
Finance
Marketing
Supply Chain
Semester 1
Product Innovative Idea
Product Planning
Thinking System
Advance Research Methods
Researchers
Academician
Technopreneur
Engineer Consultant
Alumnus Profile
FROM NOTHING TO SOMETHING

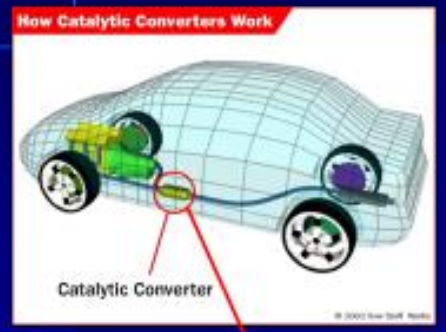
2. Pendekatan

- Pengembangan Teknologi terapan disini akan ditunjukkan contoh dengan tiga pendekatan yang berbeda yaitu:
- 2.1 Pengembangan Produk hulu ke hilir yaitu dimulai dari dasar hingga ke prototipe (An integrated Product Development starting from basic Principal to validation Prototype in Laboratory)
- 2.2 Pengembangan Produk dimulai dari konsep teknologi hingga ke “projek percontohan” (An approach of establishing Pilot Project through Technology Concept)
- 2.3 Pengembangan Produk berdasarkan kebutuhan pasar dan “reverse engineering” (Product Development using market driven and reverse engineering)

Pengembangan Produk hulu ke hilir yaitu dimulai dari dasar hingga ke prototipe (An integrated Product Development starting from basic Principal to validation Prototype in Laboratory)



Introduction



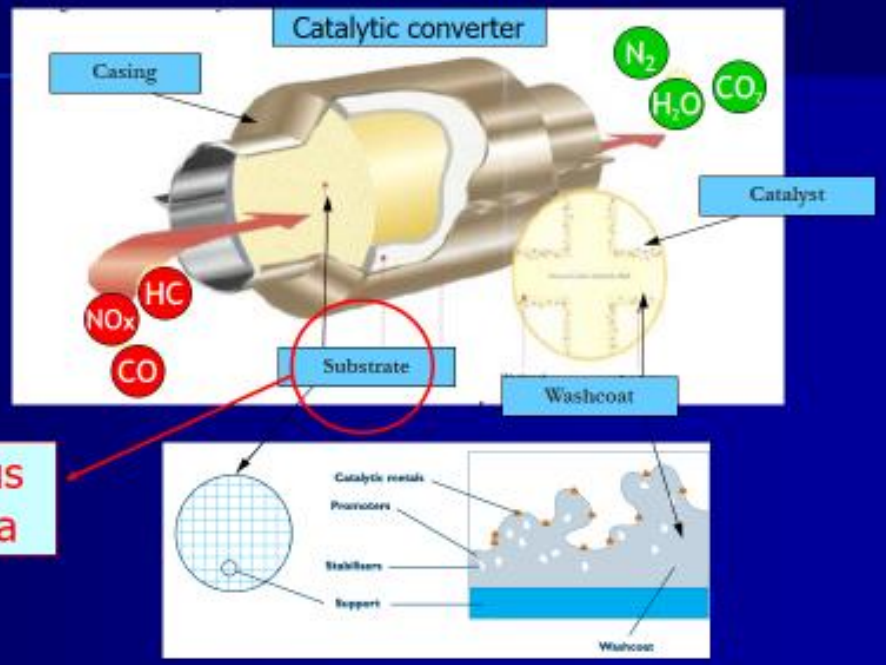
What is catalytic converter?

- A device located in the exhaust system of the vehicle.
- The device has been in use as an efficient and economic solution for the reduction of pollutants emitted by the internal combustion engine.
- The device also has been the greatest success of the automotive industry in the field of pollution control.

Main Function :

To reduce harmful emissions (CO, HC, NOx) from an internal combustion engine.

Catalytic converter consists of 4 major components:



Experimental Procedures

[1] Corrugation process by the Corrugated Tool

[2] Spiral process by the Spiral Tool

[3] The specimen in the Spiral Tool

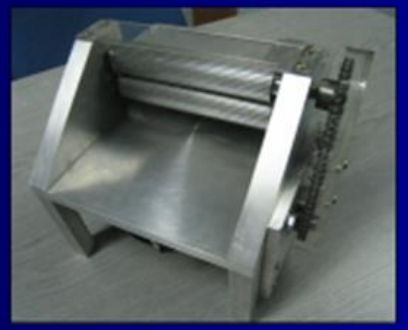
[4] Measure the loaded diameter of spiral shape by digital caliper

[5] The specimens in fully unloaded configuration

[6] Measure the unloaded diameter of spiral shape by Vertical Profile Projector

Development of Corrugated Tool and Spiral Tool

The developed apparatus of Corrugated Tool



The developed apparatus of Spiral Tool

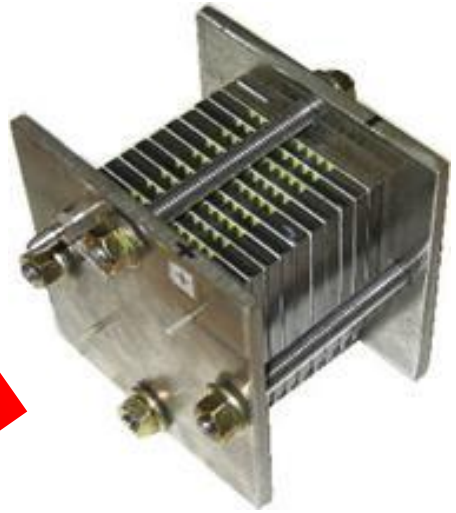
- Optimization has been made by producing the spiral catalyst substrate

Full scale of catalytic converter

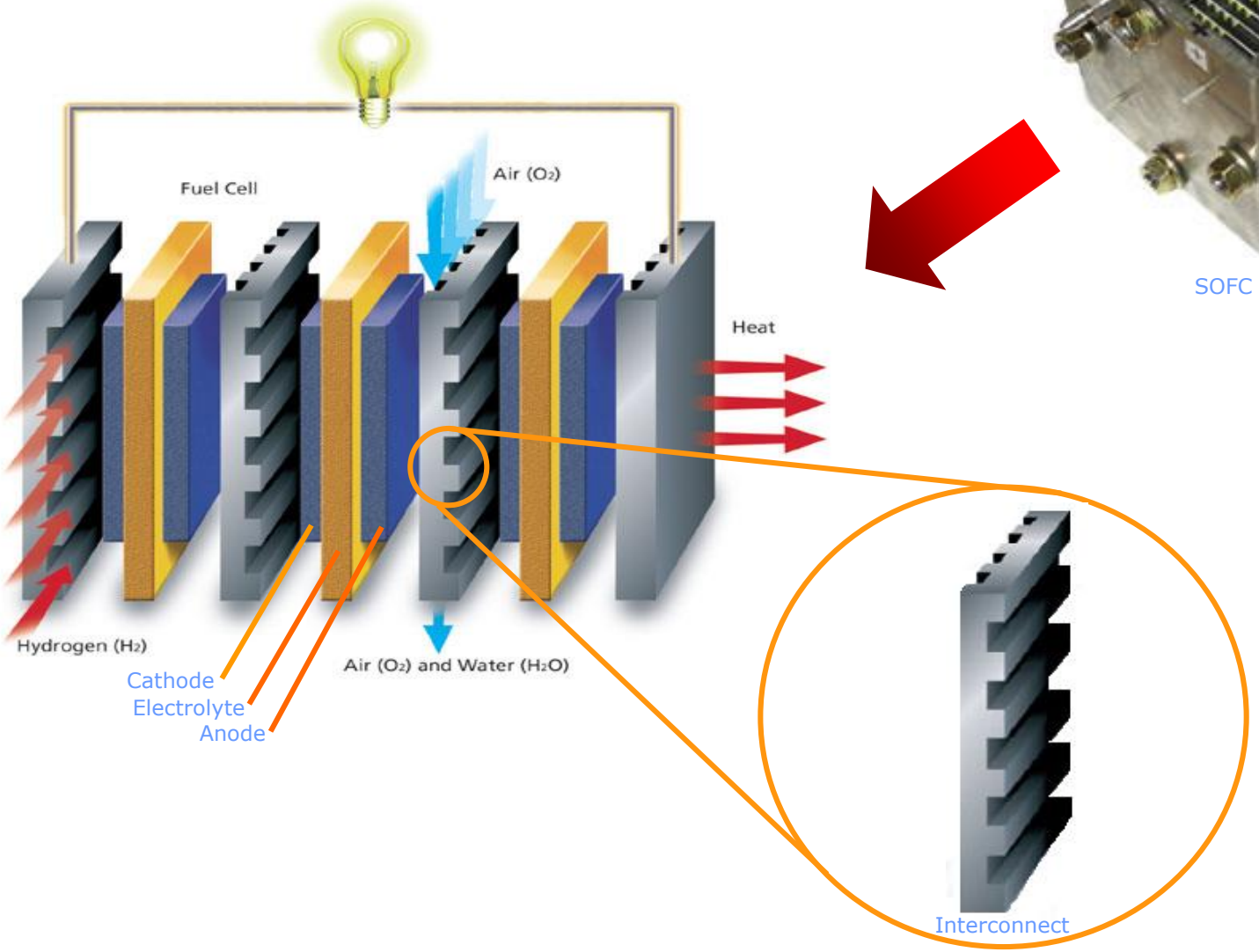
Placing the spiral catalyst substrate in the developed casing of catalytic converter

PROBLEM STATEMENTS:

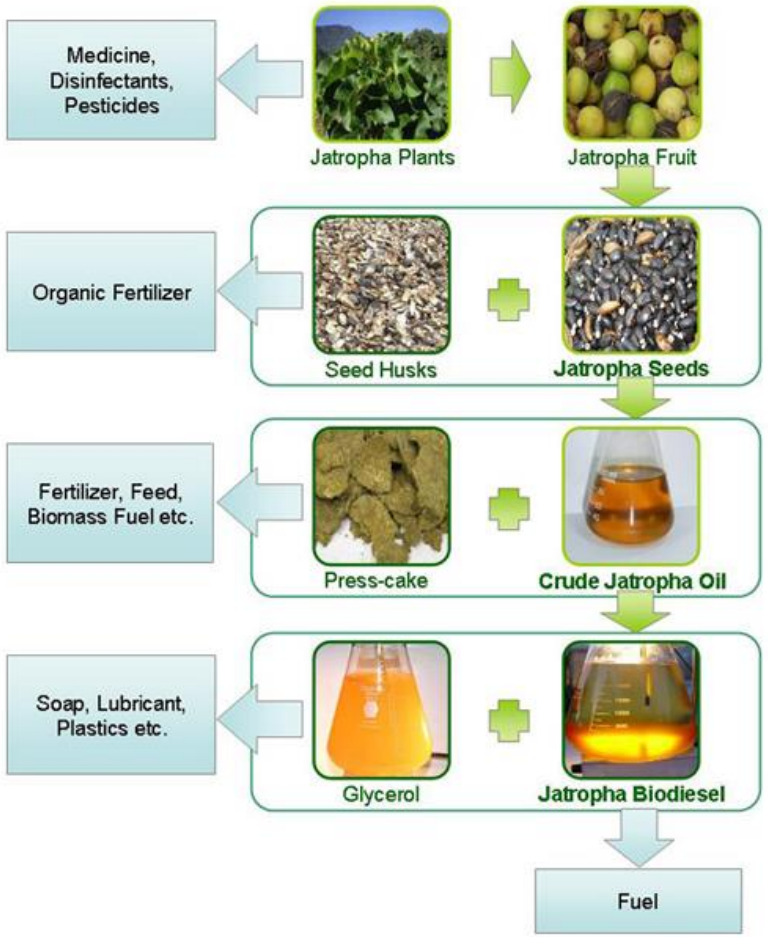
Comparison the Performance at High Temperature between FeCr Intermetallic and commercial Ferritic Steel

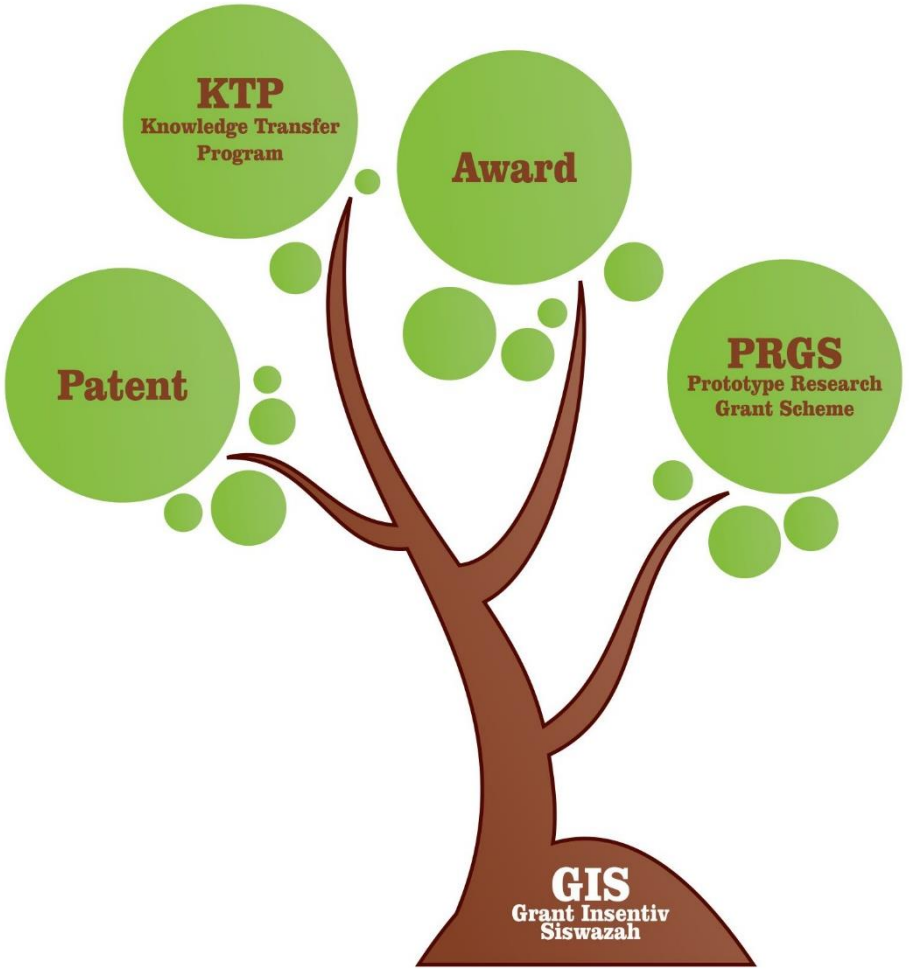


SOFC Stack



3.2. Pengembangan Produk dimulai dari konsep teknologi hingga ke “projek percontohan” (An approach of establishing Pilot Project through Technology Concept)



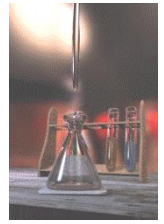


Application of New Niche Area on Social Responsibility

Azhar Food, Sdn Bhd, Factory

Waste cooking oil collected and purified

Chemical Reaction separated biodiesel from glycerol



Glycerol

Methyl Ester

Separated biodiesel washed to remove impurities

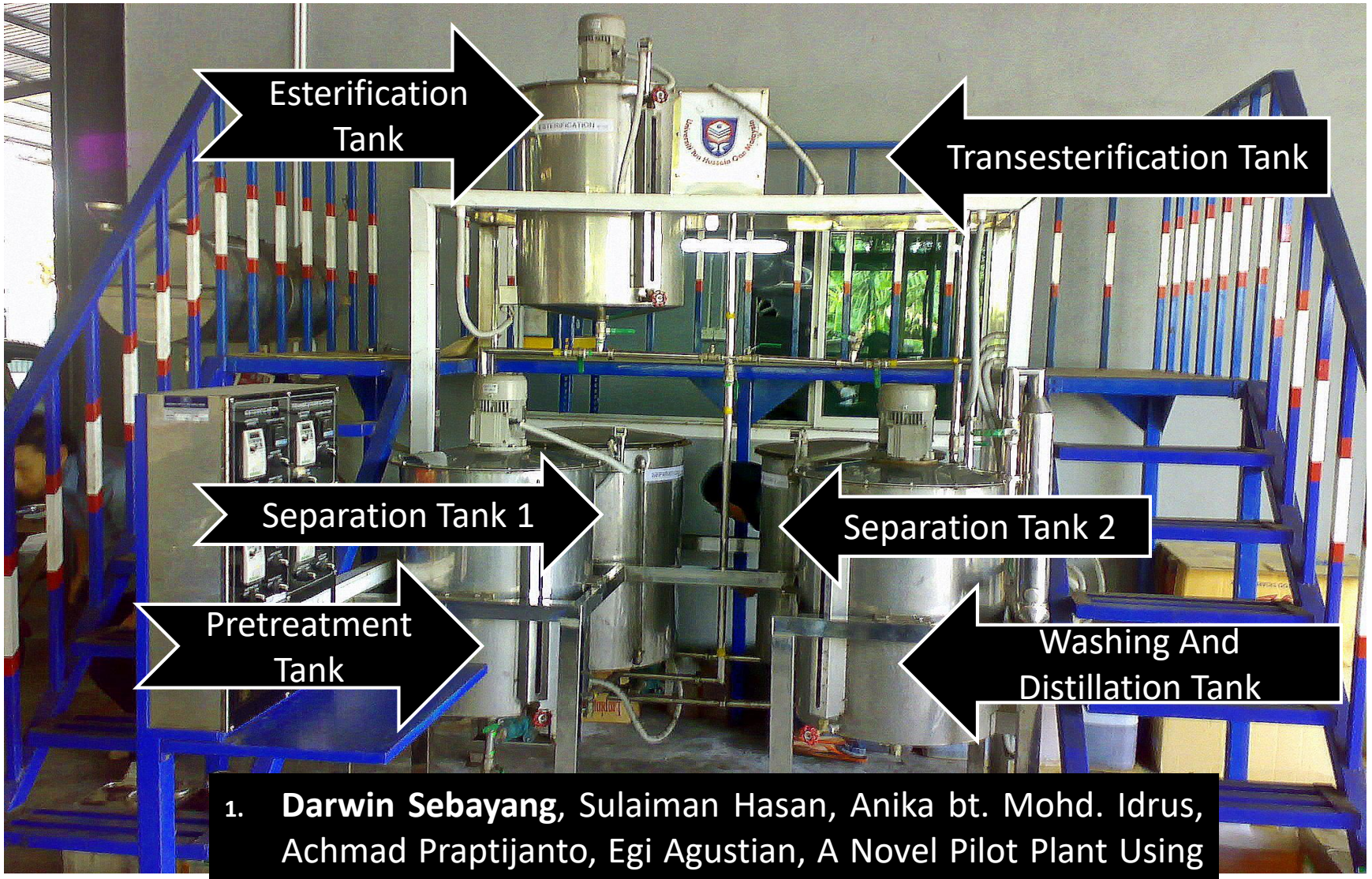
Biodiesel for fuel stove at Azhar Food, Sdn, Bhd

Biodiesel

Kilang Azhar Food

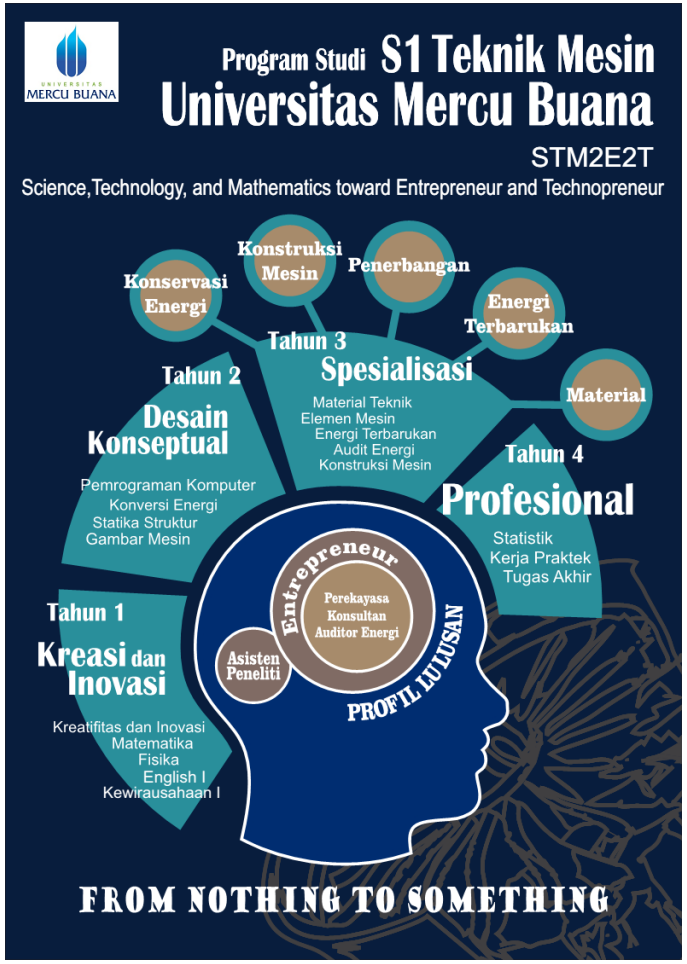
Tangki simpanan minyak

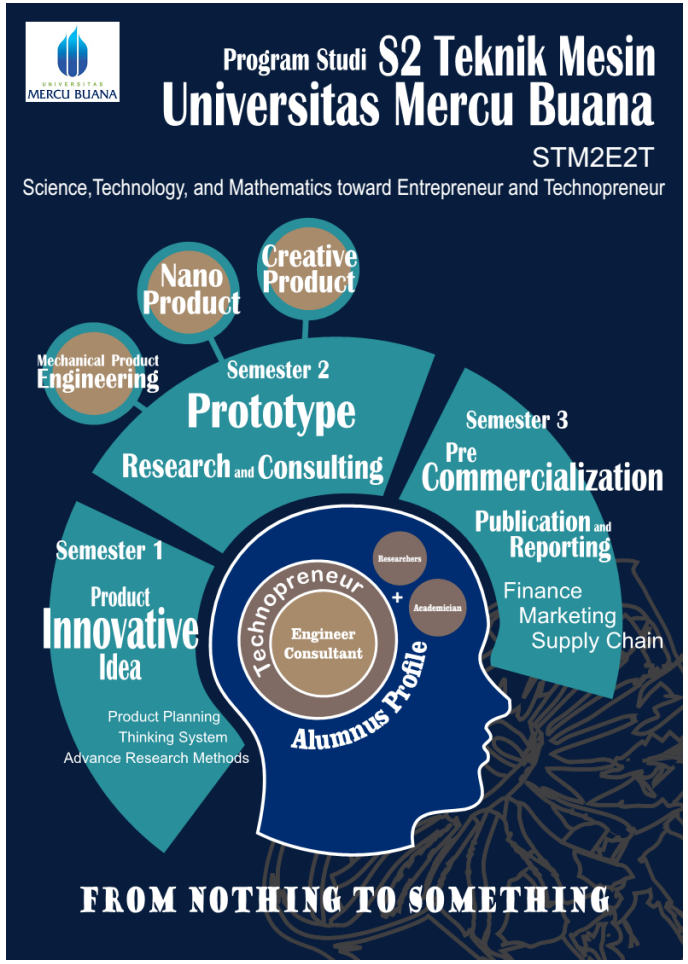
The Biodiesel Plant



1. **Darwin Sebayang**, Sulaiman Hasan, Anika bt. Mohd. Idrus, Achmad Praptijanto, Egi Agustian, A Novel Pilot Plant Using Sonochemistry Approach for Biodiesel Production , Higher Education Exhibition, Malaysia Pecipta 2011, **Bronze Medal**,

3.3. Pengembangan Produk berdasarkan kebutuhan pasar dan “reverse engineering” (Product Development using market driven and reverse engineering)

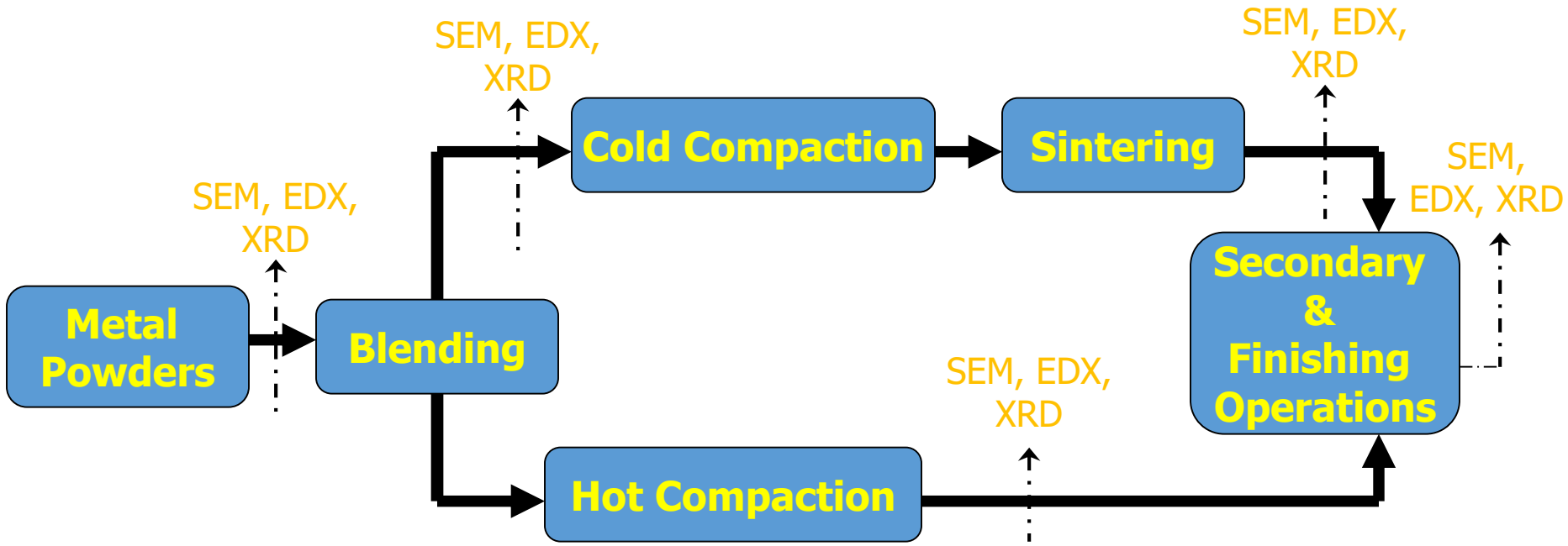




Pengembangan Produk melalui Pengembangan Laboratorium , Sumber Daya Manusia

Development of High Temperature Material Fe-Al Based Alloy Using Powder Metallurgy

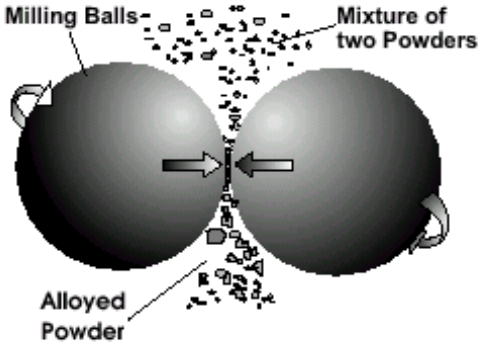
RESEARCH OVERVIEW

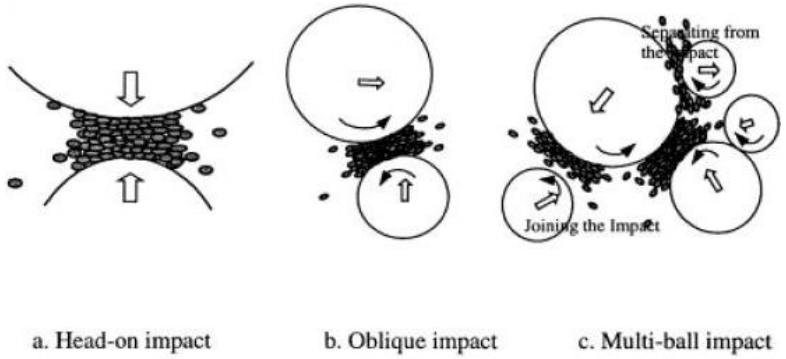


UMB

Milling/Mechanical Alloying

Planetary Ball Mill

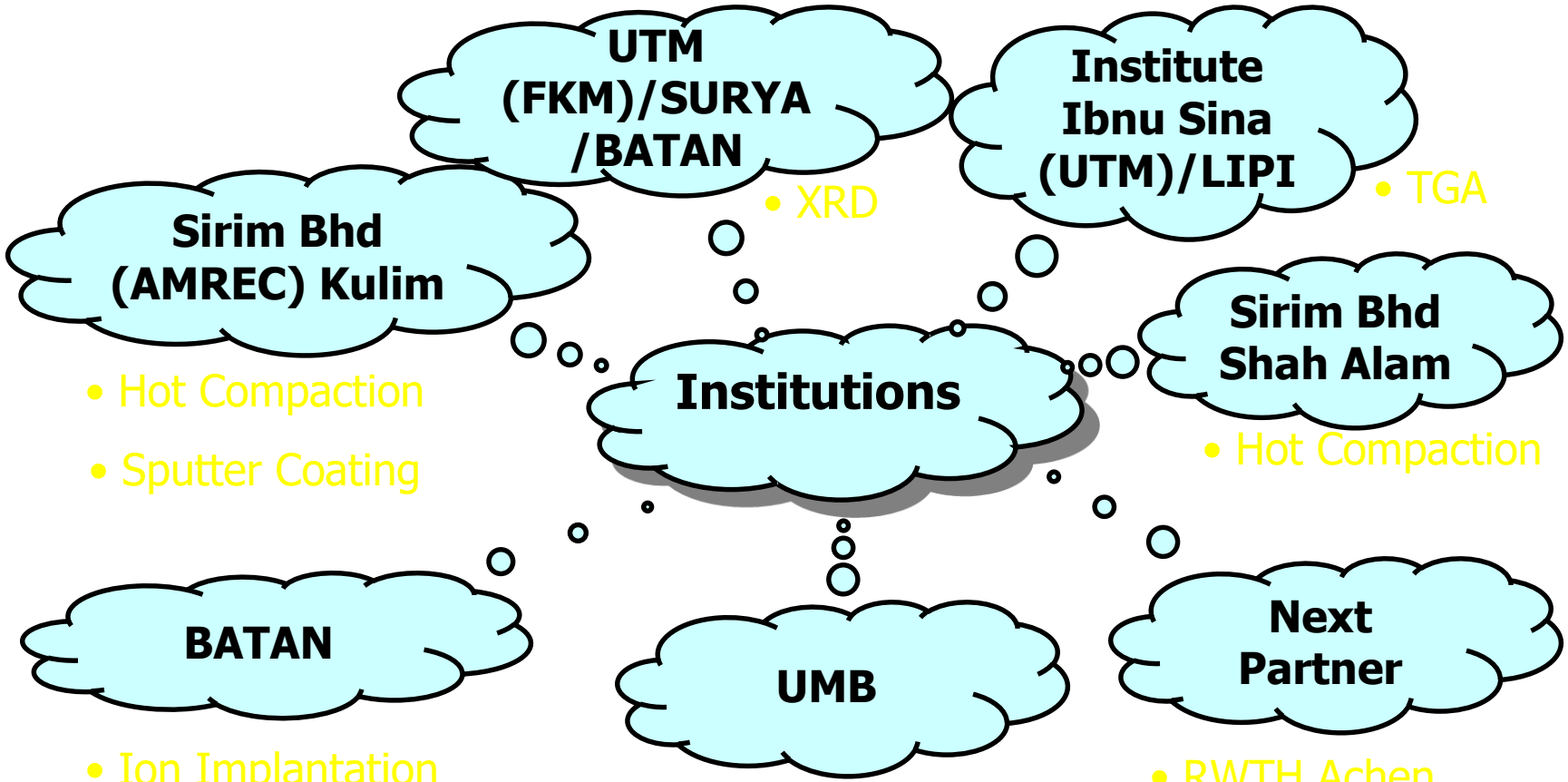


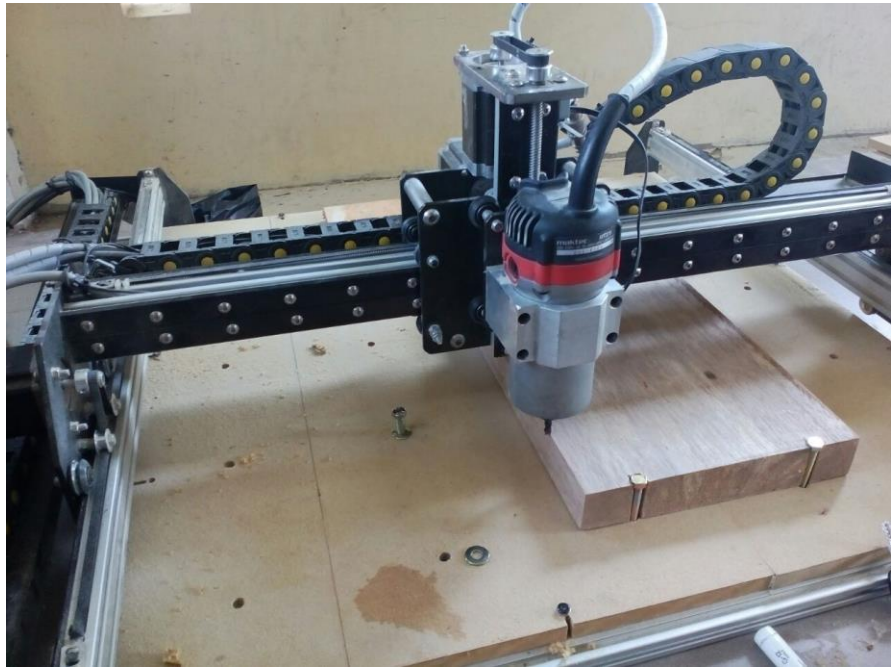


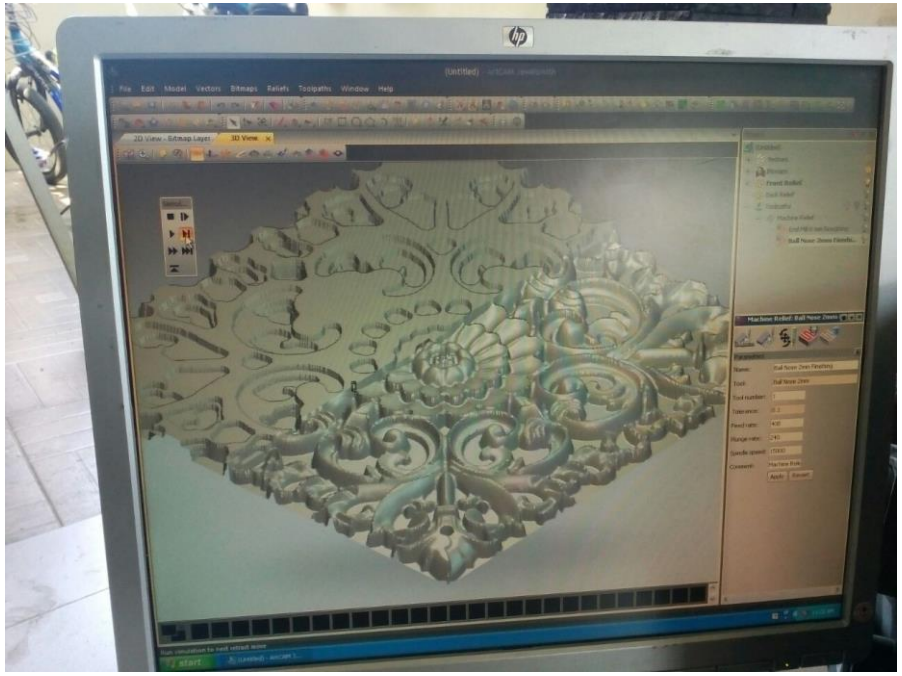
a. Head-on impact b. Oblique impact c. Multi-ball impact

The different form of impacts which might occur during high-energy ball milling (Zhang 2003)

Research Collaborations








PERTAMINA
PRODUK UNGGULAN UNIVERSITAS MERCU BUANA
SLIFA


134
UNIVERSITAS MERCU BUANA

Kementerian Riset Teknologi
Dan Pendidikan Tinggi

INFO-IPTEK-DIKTI

Universitas Mercu Buana terapkan Inovasi Simulator Alat Edukasi Osiloskop

Kementerian Riset Teknologi
Dan Pendidikan Tinggi

INFO-IPTEK-DIKTI

SLIFA, Si Pemantau Kecepatan dan Rasa Kantuk Supir

4. KESIMPULAN

Ketiga pendekatan menghasilkan luaran yang berbeda dan tergantung prioritas baik ditinjau dari segi akreditasi Universitas, Fakultas, Program Studi ataupun individu. Technopark memungkinkan lahir pengusaha berbasis teknologi. Artikel ini merupakan “sumbang saran” dari Seminar Terapan IKAFT for Nation. Universitas Sumatera Utara yang memiliki potensi yang sangat besar dan apabila sinergi antar civitas akademi USU dengan alumninya yang sudah baik dan terus ditingkatkan akan memberi kontribusi besar kepada negeri ini. Karya penulis (alumni) tidak saja mampu mengangkatnya tertulis di Marquis, Who’s Who, 2012 dan 2013, tapi ikut juga berkontribusi meningkatkan institusinya seperti akreditasi Fakulti Mekanikal dan Pembuatan, Universiti Tun Hussein Onn Malaysia ke peringkat QS 251 – 330, 2014/2017 dalam kurun yang singkat dan UMB ikut berkonstribusi dalam hari Kebangkitan Nasional ke 22 di dalam rangka mewujudkan mottonya “**U**niversitas **M**endorong **B**erinovasi berkaitan dengan pengembangan produk. Salam Simetrikal.

5. DAFTAR PUSTAKA

- Nicholls, J.R. and Quadakers, W.J. Materials Issue Relevant to the Automotive Catalytic Converters, in Hans Bode .(2002),. Material Aspects in Automotive Catalytic Converters. Germany: Wiley-VCH. pp.31-48.2
- Heck, R.M. and Farrauto, R.J. .(2001, Automobile Exhaust Catalyst. Applied Catalysis. A: General 221,),pp. 443-457
- Darwin Sebayang, Puji Untoro, Hamimah Abd. Rahman, Shahrin Hisham (2005).” Conceptual Design of Catalytic Converter”. International Advanced Technology Congress 2005, Kuala Lumpur, Malaysia
- Fahrul F. Hassan, Darwin Sebayang, Untoro. P (2008).” Conceptual Design of A Spiral Catalytic Support”, International Conference on Mechanical & Manufacturing Engineering (ICME 2008),
- M. Fahrul Hasssan, Darwin Sebayang , Untoro.P, (2009). “Apparatus for Producing A Spiral Shape of Corrugated Sheet Metal for Substrate of Catalytic Converter” , ICAME 09, Malaysia
- R. M. Heck, R. J. Farrauto, S.T. Gulati: (2009) “ Catalytic Air Pollution Control Commercial Technology 3rd ed (John Wiley &Sons, Inc., New Jersey p. 114
- Sebayang, D, Untoro. P, Hamimah , A.R.Lim C.T, Azizan, M.I.S. (2006) .” The Application of Natural Zeolite To Reduce Harmfull Gasses From Exhaust System”, 5th International Material Technology Conference & Exhibition (IMTCE), Kualalumpur, Malaysia
- D.Sebayang, S.H Amirnordin, P.Untoro, Hamimah A. R .(2006). ”The Current Status on The Development of Catalytic Converter”, Malaysian Technology University of Conference and Engineering Technology (MUCET), Batu Pahat, Malaysia
- **D.Sebayang**, P.Untoro, S.H. Amirnordin, H.Abd. Rahman .(2007). ” Development of An Innovative Catalytic Converter – Effort And Challenge, World Engineering Congress 2007, Penang 5- 9 August 2007, ISBN 978-983-43571-1-5@2007 FEEIIC
- Hamimah, A.R., Shahrudin, K.F., Ainun R.A, Hatijah B. (2006). ” Development of SiC-Zeolite Porous Ceramic”, Conference on Applied Sciences, UITM

- Hamimah, A.R., Ainun R.A., Hatijah, B. Khairul F.S (2006), " Influence of Additive and Sintering Temperature on Porous Ceramic Properties, International Conference on Solid State Science and Technology, Kustem
- Hamimah, A.R Nad C.G. Yap .(2007). '' Preparation of Ceramic Foam by Simple Casting Process", PSU-UNS International Conference on Engineering and Environment
- P. Bharali. (2010) Automotive Exhaust Catalysis. N. E. Quest; Volume 3, Issue 4, January 2010. pp 40-43
- H.Sun, X. Quan, S. Chen, H. Zhao, Y.Zhao. (2007) " Preparation of well-adhered γ-Al_2O_3 washcoat on metallic wire mesh monoliths by electrophoretic deposition. Applied Surface Science 253 (2007) pp.3303-3310.
- X. Whu, D. Weng, S. Zhao, W. Chen. (2005) ." Influence of an aluminized intermediate layer on the adhesion of a γ-Al_2O_3 washcoat on FeCrAl. Surface and Coatings Technology 190 434-439.
- D. Dou. (2005). U.S. Patent 6,930,073B2
- D. Bathen, H. Schmidt-Traub (Hrsg.). (2001)." Innovative Energieträger in der Vefahrenstechnik II, Shaker Verlag Aachen (2001), pp. 31-37.
- **Sebayang, D**, Untoro, P., Putrasari, Y., (2010.). "Effect of SiC or Al_2O_3 Pretreatment using Ultrasonic Technique on High Temperature Oxidation Behaviour of the FeCrAl Plating with Nickel", Proceeding of the 14th International Conference on Applied Mechanics and Mechanical Engineering AMME-14, Egypt: Military Technical College Cairo
- Puji Untoro, Arbi, **Darwin Sebayang**, .(2008.)." Cross Section Preparation for Oxide Layer Characterization with Electron Microscope", International Conference on X-Ray and related technique In Research and Industrial, Sabah
- **Sebayang, D**., Putrasari, Y., Hasan,. S and Untoro , P. , (2010.)." NiO Development on FeCrAl Substrate for Catalytic Converter using Ultrasonic and Nickel Electroplating Method", Advanced Materials Research, vol. 129-131, 2010, pp. 1262-1266. **ISSN: 1662-8985. (**Impact Factor: 0.2334)

- **Darwin Sebayang**, M.H. Hassan , Puji Untoro.(,2009,).” Apparatus for Producing a Spiral Catalyst Substrate (Cor-Ral Tool)”, International Exhibition ITEX 2009, Malaysia, **Silver Medal**
- **Darwin Sebayang**, Mohd. Fahrul bin Hassan. (2008).” Research and Innovation Fest 2008, Universiti Tun Hussein Onn Malaysia”, Model For Producing A Spiral Catalyst Substrate for Catalytic Converter, **Bronze Medal**
- **Darwin Sebayang**, Yanuandri Putrasari, Sulaiman Hassan, M.A. Othman, Puji Untoro.(2013). “Preparation of NiO Catalyst on FeCrAl Substrate through Combination of Electroplating, Ultrasonic Treatment and Oxidation Process “ in Book Chapter in Electroplating edited by Darwin Sebayang and Sulaiman Hassan published by InTech Publisher, 2012. Most downloaded in year 2013
- **Darwin Sebayang**, Sulaiman bin H. Hassan, (2012), Electroplating, In. Tech Publisher, 2012
- F.M. Noor, **D. Sebayang**, P.Untoro. (2006), ‘Development of High Temperature Material Fe-Al based alloy Using Powder metallurgy”, International Quality in Research 6-7 Sept 2006, University of Indonesia, ISSN 1411-1284,2006
- P.Untoro, **D. Sebayang** and F.M.Noor. (2007),” Powder Metallurgy Route For Production Of Novel FeAl Intermetallic For High Temperature Application”, World Engineering Congress 2007, Penang 5- 9 August 2007, ISBN 978-983-43571-1-5@2007 FEEIIC,2007
- **D.Sebayang**, P.Untoro, F.M. Noor. (2007). ” Oxidation Behavior of Fe-45 Al Intermetallic: The Effects of Y_2O_3 and CeO_2 on Cyclic Oxidation Kinetics”, INCCOM6 – India, 2007, Anamaya Publisher, New Delhi, India,2007
- N.Abdullah, S. Mahzan, A.Firdianto, N. Arsat, **Darwin Sebayang** (2009).” The Characteristic of Porosity in Al-SiC Metal Matrix Composite Under Different Milling Time”, Malaysian Metallurgical Conference (MMC), Perlis. Indexed by Google Schoolar,2009
- **Sebayang, .D**, Untoro, P., Putrasari, Y.,Hashim,M, Soon, Y., Gooma, M, (2009), “Influence of Difference Deposition Technique of Nickel on the FeCrAl Metallic Monolith”, Malaysian Metallurgical Conference (MMC), Perlis. Indexed by Google Schoolar,2009
- Dafit Feriyanto, Maizlinda Izwana Idris, **Darwin Sebayang** ,Puji Untoro, Mohd. Asraf Othman, Microstructure on FeCr Based Alloy added with Yitrium Oxide (Y2O3) prepared via Ultrasonictechnique)”, Journal of Applied Mechanics, 2013
- D.S. Khaerudini**, D. Sebayang**, S.Mahzan, P. Untoro, (2011), “Thermal Stability of nanostructured iron-chromium alloys for interconnect application of solid oxide fuel cell”, Corrosion Engineer Science and Technology, 2011, Impact Factor 0.54
- Deni S. Khaerudini, **D. Sebayang**, H. Saryanto, B. Omar, M. A. Othman, A. Hamid, T. Sujitno, and P. Untoro (2011). “Oxidation resistance of unimplanted and implanted of nanocrystalline FeCr alloys and commercial alloy with lanthanum”, ISSN: 2156-7573. J. Adv. Microsc. Res. 6, 263-277, 2011

- Deni S. Khaerudini, M.A. Othman, S. Mahzan, P. Untoro, **D. Sebayang.** (2011), Improved oxidation resistance of nanocrystalline lanthalum –implanted FeCr alloy", Procedia Engineering, 2011
- Deni S. Khaerudini, Mohd. Asraf Othman, Shahruddin Mahzan, Daniele Fredrick, Tjipto Sujitno, Puji Untoro, **D. Sebayang**, (2011). "Solid Oxide Fuel Cell Performance with Developed FeCr Alloy Interconnect", Lecture Note in Electrical Engineering, 1876-1100.12/2011, 2 (LNEE 133):679-684,2011
- **D. Sebayang**, Deni S. Khaerudini, H. Saryanto, M.A. Ithman, Sulaiman Hassan. (2011). "Oxidation Behaviour of Ion-Implanted Nanocrystalline Fe-Cr Alloy Fabricated by Different Densification Techniques: Spark Plasma Sintering and Hot-Pressing", World Journal of Engineering (WJOE). ISSN: 1708-5284,2011
- **Darwin Sebayang**, Deni S. Khaerudini, Hendi Saryanto, M.A. Othman, T. Sujitno, Puji Untoro,(2011). " Effect of Nanocrystalline and Ti Implantation on the Oxidation Behaviour of $Fe_{80}Cr_{20}$ Alloy and Commercial Ferritic Steel", Key Engineering Materials Vols. 474-476 (2011) pp 2134-2139. ISSN: 1662-7482. (Impact Factor: 0.224)
- **Darwin Sebayang**, Deni S. Khaerudini, Hendy Saryanto, M.A. Othman, Mat Husin Saleh, D. Fredrick, Puji Untoro. (2011)." , Microstructure and Mechanical Properties of Nanocrystalline FeCr Alloy Prepared by Spark Plasma Sintering", Applied Mechanics and Materials Vols. 52-54 (2011) pp 2197-2202. ISSN: 1662-7482. (Impact Factor: 0.15)
- **D. Sebayang**, Y. Putrasari, A. Firdianto, S. Hassan, M.A. Othman, P. Untoro, (2011)." Ni layer evolution of FeCrAl Substrate Treated by Ultrasonic and Electroplating Methods in Long Term Oxidation at 900^0C", Advanced Materials Research Vols. 181-182 (2011) pp 501-506. **ISSN: 1662-8985. (**Impact Factor: 0.2334).
- Hendi Saryanto, Deni D Khaerudini, Puji Untoro, M. Husen Saleh, **Darwin Sebayang** (2010), "Determination of Nanocrystalline $Fe_{80}Cr_{20}$ Powder based Alloys using Williamson-Hall Method", Advanced Materials Research, vol. 129-131, 2010, pp. 999-1003. **ISSN: 1662-8985. (**Impact Factor: 0.2334)
- **Darwin Sebayang**, Ade Firdianto, Yanuandri Putrasari, Egi Agustian, Hendi Saryanto (2010)," Preparation of Nanocrystalline □-Alumina using Ultrasonic Technique", Advanced Materials Research, vol. 129-131, 2010, pp. 1034-1038. **ISSN: 1662-8985. (**Impact Factor: 0.2334)
- **Darwin Sebayang**, Hendy Saryanto, Puji Untoro, Deni. S Kharudini .(2010)," Effect of Depth Implantation of Lanthanum on The Oxidation of $Fe_{80}Cr_{20}$ based Alloys", World Congress on Engineering (WCE) 2010, London, UK. Indexed by Google scholar.(Nominated as the best paper award)

- Darwin Sebayang**,** Deni S. Khaerudini H.Saryanto, Sulaiman Hasan, M.A.Othman, Puji Untoro.(2010). ”Oxidation Resistance of $Fe_{80}Cr_{20}$ Alloys Treated by Rare Earth Element Ion Implantation”, Book Chapter in Current Themes in Engineering Science 2010 (CTES 2010) Handbook, edited by. AM. Korsunsky, American Institute of Physics (AIP) Press-Book
- Dafit Feriyanto, M.I. Idris, **Darwin Sebayang**, (2014). “Effect of Cr to Fe on Solid Solubility , Lattice Parameter and Strain of Fe_{80} Cr_{20} Alloy Powder”, Journal of Applied Mechanics and Material, Vol 660 (2014), pp. 280-284
- Dafit Feriyanto, M.I. Idris, **Darwin Sebayang**,(2015).”The Effect of Ultrasonic Treatment on Oxidation Resistance and Microstructure of Fe80Cr20 Alloy Powder at High Temperature Process”, Journal Material Research Vol. 1087 (2015) pp 126-130
- Achmad Pratiyanto, Egi Agustian, Yanuandri Putrasari, **Darwin Sebayang** , Anika Zafiah M. Rus, Sulaiman Hasan and Puji Untoro, (2015), “Sonochemistry Approach to Reducing Biodiesel Reaction Time from Jathropha Curcas Oil by Clamp on Tubular Reactor”, Energy Procedia 68 (2015) pp. 480- 489, Elsevier
- **Darwin Sebayang**, Puji Untoro, Achmad Praptijanto and Kamarul Azhar Kamaruddin. (2010), “Esterification of acid from crude jatropha curcas seed oil using clamp on tubular reactor”, The 2010 International Conference on Environmental Science and Technology (ICEST), Bangkok, Thailand. Indexed by Thomson
- **Darwin Sebayang**, Puji Untoro, Achmad Praptijanto, Abdul Azis,(2010),” Transesterificaton process from jatropha curcas using ultrasound clamp reactor”, The 2010 International Conference on Environmental Science and Technology (ICEST), Bangkok, Thailand. Indexed by Thomson
- Egi Agustian, Wuryaningsih S.R, **D. Sebayang** and A.Praptijanto,(2010) “Transesterificaton of jatropha oil using heterogenous solid catalyst base bentonite”, Proceeding of the International Conference on Environmental Science and Technology (ICEST), Bangkok, Thailand. Indexed by Thomson,pp.188-192
- **Darwin Sebayang**, Egi Agustian, Achmad Praptijanto.(2010). ”Transesterfication of Biodiesel From Waste Cooking Oil Using Ultrasonic Technique”, International Conference of Environmental (ICENV 2010), Pulau Penang, University Sains Malaysia
- Achmad Praptijanto, **Darwin Sebayang**, Egi Agustian, Puji Untoro.(2010), ”Rapid Monitoring of Fatty Acid Methyl Ester in Sonochemistry Transesterfication Process Using Attennuated Total Reflection”, International Conference of Environmental (ICENV 2010), Pulau Penang, University Sains Malaysia
- Achmad Praptijanto, **Darwin Sebayang**, Egi Agustian and Puji Untoro (2010), “A Two Step Acid Alkali Catalyzed Transesterification from Jatropha Curcas L. Seed Oil using Ultrasound Clamp on Tubular Reactor”, Conference on Postgraduates Incentive Research Grant (CoGIS) 2010, UTHM, Johor, Malaysia
- **Darwin Sebayang**, Sulaiman Hasan, Anika bt. Mohd. Idrus, Achmad Praptijanto, Egi Agustian.(2011) , “A Novel Pilot Plant Using Sonochemistry Approach for Biodiesel Production” , Higher Education Exhibition, Malaysia Pecipta 2011, **Bronze Medal**,

- A Process of Producing Fatty Acid Alkyl Ester (PI 2013702355), Patented in Malaysia
- **Darwin Sebayang**, Nor Hazwani, Sulaiman bin Hassan (2013), Biodiesel Production based on waste cooking oil", Seminar Hasil Penyelidikan Knowledge Transfer Program, Putrajaya, 2013
- **Darwin Sebayang** (2010). "Efforts and Challange in Establishing National and International Research Collaboration in Engineering Design and Advance Material", ISBN 978-967-5457-15-9, Penerbit Tun Hussein Onn Malaysia, 2010
- NN, Memo Koordinasi Program, Universitas Mercu Buana, 2015- 2016 dan 2016-2017
- Agung Wibowo, Darwin Sebayang, Nur Indah .(2017) , "Osciloscop Learning Simulator", Hak Cipta No.C0021701892, Mei 2017
- Hadi Pranoto, **Darwin Sebayang**, .(2017) ." Alat Pembatas Kecepatan Kendraan dan Analisa Kelelahan", No. Pendaftaran P0201701830, Maret 2017
- Nur Indah, Haftirman, Haris Wahyudi, I Gusti Ayu Arwati, **Darwin Sebayang**, .(2017) ,"Panel Pneumatik 2 (Dua) Sisi Pneumatik/Hidrolik", No Pendaftaran S00201701826, Maret 2017
- Kontan Tarigan, .(2017). "Kotak Sarung Untuk Mesin Paduan Mekanik", No Pendaftaran S00201701827, Maret 2017
- **Darwin Sebayang**, Sagir Alva, I Gusti Ayu Arwati, Ahmad Ariri, .(2017) Preparasi Katoda Udara, No.Pendaftaran P00201701823, Maret 2017
- Haftirman, Haris Wahyudi, Nur Indah, **Darwin Sebayang**,.(2017). "Sistem Peralatan Pengujian Mikro Fatik", S00201701825, Maret 2017
- Erfan Handoko, Mudrik Alaydrus,(2016) ." Komposisi Material Magnetik BaFe 12-2x (Coo.8Tlo.8Mn0.4)xo19 dan Metode Pembuatannya", No. Pendaftaran P00201608738, Januari 2016
- Mudrik Alaydrus, .(2016)."Antena Multiple Input Multiple Output Poligon dengan Pembumian berbentuk Cincin", No Pendaftaran S00201609057, Desember 2016
- Zilla Egi Tiasti, Dinda Radhiyanti, Alya Nursyafira, Karina Esti Indraswari, Mega Radika, Sandynasti Wijaya,Intan Pitsa Cahyani, .(2017) , "Meja Rias Portable yang menggunakan Engsel Hidrolik", No. Pendaftaran S00201701828, Maret 2017
- Imam Bakhori, .(2017)." Kursi Keramik, Desain Industri". No. A00201700661, Maret 2017
- Pangeran Pangestu, .(2017) ."Coffee Table, Desain Industri". No. A00201700666, Maret 2017
- Farid Fadilah.(2017). "Side Table Kotak", Desain Industri No. A00201700665, Maret 2017
- Anisa Oktaviani.(2017), "Side Table Bulat", Desain Industri No. A00201700664, Maret 2017