ISBN :

2021 5th INTERNATIONAL CONFERENCE

FIRST

FORUM IN RESEARCH, SCIENCE, AND TECHNOLOGY (FIRST)

CONFERENCE PROGRAMS AND ABSTRACT

ADVANCING SUSTAINABLE SCIENCE AND TECHNOLOGY THROUGH EFFECTIVE COLLABORATION

OCTOBER 20-21, 2021

Palembang, Province of South Sumatera
Indonesia

Organized By :

FOREWORD FROM GENERAL CHAIR 5th FIRST 2021 INTERNATIONAL CONFERENCE

Assalamu'alaikum wr wb,

Alhamdulillahirrobbil 'alamin, Thank to the God, almighty, due to His bless and love, we are granted good health and opportunity so that we can meet here in the event of the 5th FIRST and the 3rd SNAPTEKMAS 2021.
The honorable keynote speakers of the 5th FIRST and the 3rd SNAPTEKMAS 2021

Dra. Nana Yuliana, MA., Ph.D., as The Indonesian LBBP Ambassador for the Republic of Cuba, concurrently with the Commonwealth of the Bahamas, Jamaica, the Dominican Republic and Haiti
Prof. Ramaraj Boopathy. from U Alcee Fortier Distinguished Service Professor of Biological Sciences At the Nicholls State University, USA
Dr. Ing. Ahmad Taqwa, the Director of State Polytechnic of Sriwijaya.

The honourable keynote speakers, distinguished guests, all participants, ladies and gentlemen,

For the beginning of my speech, let me welcome all of you with my great warm hug. It is a great honor for me that you choose the 5th FIRST and the 3rd SNAPTEKMAS 2021 as your conference. I am so proud that the authors still become enthusiastic to develop the knowledge although in this pandemic situation. Let us still work hard to support the development of the world through the research, science, and technology in many parts of the knowledge, as what has been purposed by the FIRST conference itself.

In this occasion, I would like proudly to inform you that the 5th FIRST and the 3rd SNAPTEKMAS 2021 as the forum to share knowledge, to search, to find, and to enlarge the link with other industries and universities has attracted so many authors from abroad, such as from: Politeknik Tun Syed Nasir Syed Ismail; MARA University; Politeknik Mukah Sarawak; University Sultan Zainal Abidin, Terengganu, Malaysia; Politeknik Melaka (PMK) Malaysia; Iloilo Science and Technology University (ISAT-U) Philipina; Politeknik Kota Kinabalu; Universiti Teknologi Malaysia; The National University of Malaysia; National Chin-Yi University of Technology (NCUT); Accounting Research Institute UiTM-Malaysia; Management and Science University Malaysia; AlBaha University, KSA, Saudi Arabia; Politeknik Melaka (PMK), Malaysia; Kuantan Community College, Pahang, Malaysia; Universiti Brunei Darussalam; and Ferdowsi University of Mashhad, Iran.

Welcome to all of the researchers that become the collaborators in our research and community service. It is our great honour to have you as our collaborators and participants in the 5th FIRST and the 3rd SNAPTEKMAS 2021.

The honourable keynote speakers, distinguished guests, all participants, ladies and gentlemen,

In this chance, I would like to say thank you very much to the Director of State Polytechnic of Sriwijaya for his full support in the development of the Research and Service Community programs. Due to his hard work and his belief to all of the committee so that this event can be held.

In this occasion, I also would like to convey my big thank to all of the keynote speakers, invited guests, all the participants, all reviewers, and all committee of the5th FIRST and the 3rd SNAPTEKMAS 2021. Without you all, this event will be nothing. May Allah SWT gives His reward for your sincerity. As the time goes by, it is hoped that our cooperation and coordination in the FIRST and SNAPTEKMAS can be maintained and improved. I hope that you can enjoy this conference and can get a big benefit from this event. I also wish that we can meet again in the forthcoming FISRT ad SNAPTEKMAS

Wassalamu'alaikumwaraahmatullahi wabarakatuh

FOREWORD FROM DIRECTOR OF STATE POLYTECHNIC OF SRIWIJAYA

The honorable, FIRST 2021 and SNAPTEKMAS 2021 keynote speakers,

Dra. Nana Yuliana, MA., Ph.D., as The Indonesian LBBP Ambassador for the Republic of Cuba, accredited to the Bahamas, Republic of Dominican, Republic of Haiti and Jamica

Prof. Ramaraj Boopathy., from U Alcee Fortier Distinguished Service Professor of biological sciences at the Nicholls State University, USA

Dr. Ing. Ahmad Taqwa, MT., as Director of Politeknik Negeri Sriwijaya

Assalamualaikum wr wb,

Let us extend our gratitude to Allah SWT, the most gracious, the most merciful. Due to His bless, we can gather here, at the Opening Ceremony of the FIRST 2021 and SNAPTEKMAS 2021

First of all, Please let me deliver my warm welcome to all keynote speakers and all participant of FIRST 2021 and SNAPTEKMAS 2021. It is my great pleasure to meet and see you in this event.

Although, there are so many obstacles that should be faced in the pandemic situation, however, as young generation, we should be optimistic, stay strong and be active in searching and finding the solution. The FIRST 2021 and SNAPTEKMAS 2021 as the DIES of State Polytechnic of Sriwijaya annual event will become one of the media to support those activities. The researchers could share knowledge, find partners, and enlarge the collaboration through this event.

Based on the change in the model of the teaching learning activity that focuses on the MERDEKA BELAJAR, State Polytechnic of Sriwijaya has a big desire in getting acceleration in the internationalization of the institution. One of them by improving the overseas and industrial collaboration, especially in joint research and joint publication. In the beginning of 2021, the research and community service unit in Politeknik Negeri Sriwijaya has launched new schemes of research and community service, namely the Overseas Collaboration Research and Overseas Collaboration Community Service. Thanks to God, those schemes have attracted researchers not only from Asia but also several other countries outside Asia, such as: research and community service collaboration with Al Baha University from Saudi Arabia, with Ferdowsi University of Mashhad from Iran, and with Princess Sumaya University of Technology from Jordan, as well as several other foreign universities.

In this occasion, I also would like to welcome all the researchers that become the collaborators in our new scheme of research and community service. It is our great honour to have you as our collaborators.

The honourable participants,

At this time, State Polytechnic of Sriwijaya has held 5 times of FIRST. FIRST publications from previous conferences have been successfully indexed not only in SCOPUS, but also in WOS. This 5th FIRST seminar will be conjugated with the 3rd National Seminar on Community Service SNAPTEKMAS. (National seminar of applied technology for public). All of these are the efforts to improve the quality of Polsri lecturers which significantly have a positive effect on the learning process of Polsri students.

Before ending my speech, I would like to congratulate the participants of The FIRST 2021 and SNAPTEKMAS 2021. May the noble efforts, support, and cooperation of researchers in this conference will continue. Special thanks to the organizer and co-organizer committee of The FIRST 2021 and SNAPTEKMAS 2021 for the hard work and the commitment in realizing this conference. Do maintain the spirit of working in a team and continue to unite in order to display a culture of excellence in the eyes of the country and the world.

With Bismillahirrahmanirrahim, I officiate The FIRST 2021 and SNAPTEKMAS 2021.
Wassalamu'alaikum warrahmatullahi Wabarakatu

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KEYNOTE SPEAKER

Dra. Nana Yuliana, MA., Ph.D.

The Indonesian LBBP Ambassador for the Republic of Cuba, concurrently with the Commonwealth of the Bahamas, Jamaica, the Dominican Republic and Haiti

Her Excellency Ambassador Nana Yuliana, Ph.D arrived in Havana, Cuba on December, 23rd, 2020 to serve her duties as the Ambassador Extraordinary and Plenipotentiary of the Republic of Indonesia to Republic of Cuba, Commonwealth of Bahamas, Dominican Republic, Republic of Haiti and Jamaica. She was appointed by the President of the Republic of Indonesia on October 19th, 2020.Prior to her position as Ambassador Extraordinary and Plenipotentiary, she was Consul General of the Republic of Indonesia in Houston, Texas, United Stated of America from 2017 –2020, after she was the Director of Mid-Career Diplomatic School at the Ministry of Foreign Affairs of Indonesia from 2014 – 2017. Her first diplomatic assignment was as First Secretary of Political Affairs at the Embassy of Indonesia in Manila from 2001-2005. From 2008 to 2012, she was the Counsellor of Economic Affairs of the Embassy of Indonesia in Bangkok and Permanent Representative of Indonesia to the United Nations Economic and Social Commission for Asia and Pacific (UNESCAP). She attended several meetings related to Millennium Development Goals (MDGs) or Sustainable Development Goals (SDGs) issues. Her bachelor's degree was English Education from Institute of Teacher's Training in Jakarta, then she pursued her Master Degree in Applied Linguistics for Macquarie University in Sydney, Australia and also International Relations from University of Indonesia in Jakarta, Indonesia. She completed her Doctoral Degree in Development Studies from the University of Santo Tomas, Manila, Philippines in 2006. While serving as a diplomat since 1995, her passion in teaching and learning encourages her as well to share her knowledge and teaches at the University in Jakarta, Indonesia. During her tenure as Consul General, she was very active in promoting Trade, Tourism, Inbound and Outbound Investments and very keen to engage with Universities for cooperation in human capital development.

KEYNOTE SPEAKER

Prof. Ramaraj Boopathy

Alcee Fortier Distinguished Service Professor of biological sciences
at the Nicholls State University, USA

Fulbright Scholar Fulbright Senior Specialist World Class Professor-Government of Indonesia. Honorary Visiting Professor, ITB, Indonesia Alcee Fortier Distinguished Service Professor John Brady Endowed Professor in Biological Sciences Nicholls State University Business Address: Alcee Fortier Distinguished Service Professor John Brady Endowed Professor in Biological Sciences Department of Biological Sciences Nicholls State University Thibodaux **EDUCATION:** B.Sc. Zoology, University of Madras, India; 1979 M.Sc. Environmental Biology, Tamil Nadu Agricultural University, India; 1981 Ph.D. Environmental Biology, University of Madras, India; 1986 **UNIVERSITY RESPONSIBILITIES**: Responsibilities include Teaching Environmental Biotechnology, a Senior and Graduate lever course, Marine and Environmental Biology (Graduate Course), Microbiology and Environmental Biology courses. Research interests include Bioremediation of Hazardous Chemicals and Anaerobic Microbiology. Service includes advising students, participate in Departmental and University committees and serving the local and regional communities. Advisor to Masters Program in Marine and Environmental Biology. **PROFESSIONAL EXPERIENCE:** January 2013 – Present: John Brady Endowed Professor in Biological Sciences, Department of Biological Sciences, Nicholls State University, Thibodaux. Teaching, Research, and Service to the University and Community. August 2012 – Present: Alcee Fortier Distinguished Service Professor, Department of Biological Sciences, Nicholls State University, Thibodaux. Teaching, Research, and Service to the University and Community. August 2004 – Present: Distinguished Service Professor, Department of Biological Sciences, Nicholls State University, Thibodaux. Teaching, Research, and Service to the University and Community. **MAJOR AREAS OF RESEARCH INTERESTS:** Anaerobic digestion, Composting, Biodegradation of hazardous chemicals. Antibiotic resistant bacteria and Antibiotic resistance genes in the aquatic ecosystem. Isolation and identification of novel bacteria. Anaerobic degradation of explosive chemicals with particular reference to sulfate reducing bacteria. Design and development of biological reactor systems. Microbial immobilization of heavy metals and radionuclides. Alcohol

production from agricultural residues. Water quality in the wetlands. Alternative to sugarcane burning, Biological control of termites. Organic ways to control land loss and coastal restoration.

KEYNOTE SPEAKER

Dr. Ing. Ahmad Taqwa, MT.

Director of Politeknik Negeri Sriwijaya Indonesia

Director of State Polytechnic of Sriwijaya, other than that, he is still active at Head of The Research and Publication Commission Forum Director of State Polytechnical In Indonesia, Founder of The Online Journalist Board (IWO) Sumsel, Chairman of The Advisory Board of UKM Nusantara Palembang and Assessor of Higher Accreditation Board. **EDUCATION**: Diplom Ingenieur Electrical Engineering HTL, Ingenieurschule Beider Basel, Switzerland; 1994,Magister (2005) and Doctoral (2010) at Electrical Engineering, Bandung Institute of Technology, Indonesia. **RESEARCH**: Head of Research Assignment "Mini PLTS Periodic Cooling System to Overcome Overheating in Palembang City" (2019), Member of The Research Assignment "Effects of Sea Salt Dust Collection on Output Loss and Solar Panel Output Efficiency" (2020), and Head of Research Assignment "Design and Build of Wireless Sensor Network Prototype Detection Of Landslides Based on IOT and LORA" (2020). **DEDICATION:** "The Design and Evaluation of Virus Scan in The E-Mail System in SMA N 5 Palembang" (2018)**,** Assignment Service "Utilization of WSN Technology in Parking Air Monitoring Foundation SMP Harapan Mulia Palembang" (2019)**,** Development of Teaching Materials with Interactive Multimedia with Education Game for Harapan Mulia Junior High School Students" (2020). **AWARD:** Certificate In Participating In The 200 Hour Advanced Technical Teacher Training awarded by FONTYS and PEDC (1998), Satyalancana Karya Satya X Year 2011 And Satyalancana Karya Satya XX Year 2017 by The President of The Republic of Indonesia. **WORKSHOP**: Seminar and Focus Group Discussion Forum The Rector of Indonesia "Economic Stability In The Vuca Area", Ujung Pandang (2020), Workshop on Using Integrated Resources Information System Applications For Lecturers of State Polytechnical Polytechnic, Palembang (2019) And Workshop of Learning Methodology of Polsri Lecturers and Outside Education Domicile (PDD) as a Source Person, Palembang (2019).

RUNDOWN
The 5th FIRST 2021 INTERNATIONAL CONFERENCE
(FORUM IN RESEARCH SCIENCE AND TECHNOLOGY)
SNAPTEKMAS (Seminar Nasional Aplikasi Teknologi pada Masyarakat) 2021
Palembang, South Sumatera, Indonesia
Thursday, October 21, 20201

Thursday, October 21, 20201				
No.	**Session**	**Person in Charge**	**Time Allotment (WIB)**	**Liaison Officer**
1.	Registration	Event Section Committee	07.00 – 08.00	Doeslohal Djumrianti, S.E.MIS., Ph.D
2.	The Opening Ceremony	Event Section Committee	08.00 – 09.00	
3.	Do'a			
4.	Indonesian National Anthem			
5.	Chair Report Speech			
6.	Speech and Opening Remarks by Director of State Polytechnic of Sriwijaya			
7.	Souvenirs Gift, Group Photos			

PLENARY SESSION					
No.	**Keynote Speaker**	**Affiliation**	**Time Allotment (WIB)**	**Moderator**	**Liaison Officer**
1.	Dra. Nana Yuliana, MA., Ph.D.	The Indonesian LBBP Ambassador for the Republic of Cuba, concurrently with the Commonwealth of the Bahamas, Jamaica, the Dominican Republic and Haiti	09.00 – 10.00	Tiur Simanjuntak M.Pd.	Doeslohal Djumrianti, S.E.MIS., Ph.D
2.	Prof. Ramaraj Boopathy	Alcee Fortier Distinguished Service Professor of biological sciences at the Nicholls State University, USA	10.00 – 11.00	Prof. Hasan Basri	Dr. Nyayu Latifah Husni, M.T.
3..	Dr. Ing. Ahmad Taqwa, MT.	Director of Politeknik Negeri Sriwijaya, Indonesia	11.00 – 12.00	Jaksen M. Amin, M.Si.	Dr. Martha Aznury, S.Pd., M.Si.

PARALEL SESSION					
No.	**Theme**	**Room**	**Time**	**Moderator**	**Articles**
1.	TRACK 1 (Engineering and Science)	1	13.00 – 16.00	Dr. Eng Tresna Dewi, M.Eng./ Ika Sulianti, ST, MT	15
2.	TRACK 1 (Engineering and Science)	2	13.00 – 16.00	Dr. Martha Aznury, M.Si./ Indah Purnamasari, M.Eng.	14
3.	TRACK 1 (Engineering and Science)	3	13.00 – 16.00	Fatahul Arifin, M.Eng, Ph.d./ Dr. Indrayani, S.T., M.T.	13
4.	TRACK 2 (Computer Science, Computer Engineering, Information System, Informatics Management)	4	13.00 – 16.00	Rika Sadariawati, M.Si./ M.Miftakhul Amin, S.Kom., M.Eng	13
5.	TRACK 2 (Computer Science, Computer Engineering, Information System, Informatics Management)	5	13.00 – 16.00	Dr. Nyayu Latifah H, MT./ Lindawati, S.T., M.TI	12
6.	TRACK 3 (Social Science)	6	13.00 – 16.00	Doeslohal Djumrianti, S.E.MIS., Ph.D/ Dr. Marieska Lupikawati	13
7.	TRACK 3 (Social Science)	7	13.00 – 16.00	Dr. Sari Lestari ZR/ Dr. Rita Martini	14
8.	SNAPTEKMAS 1	8	13.00 – 16.00	Yurni Oktarina, ST, MT/ Mouland Irwadi, SE. M.Si.	15
9.	SNAPTEKMAS 2	9	13.00 – 16.00	Leni Novianti, M.Kom./ Maivi Kusnandar, M.Kom	15
10	SNAPTEKMAS 3	10	13.00 – 16.00	M Husni Mubarok, M.Si./ Martinus Mujur, ST, MT	15
11	SNAPTEKMAS 4	10	13.00 – 16.00	Dr. Ade Silvia H, MT./ M. Sopian Soim, ST, MT	13

CLOSSING SESSION		
Event	Time	Room
– Closing Ceremony – Announcement of: 1. Best Paper FIRST IC 2021 2. Best Paper SNAPTEKMAS 2021 3. Best Presenter FIRST IC 2021 4. Best Presenter SNAPTEKMAS 2021 – Quiz Online	16.00– 17.00	Main Room

TRACK 1
(Engineering and Science)

ROOM : 1
TIME : Thursday, 21 October, 2021/ 13.00 - 16.30
ARTICLES : 15
MODERATOR : Dr. Eng Tresna Dewi, M.Eng./ Ika Sulianti, ST, MT

NO	Time	ID	AUTHORS	TITLE	AFFILIATION
1	13.00-13.10	3772	Radius Pranoto, Anggi Nidya S, Ricky RA, Djaka Suhirkam, Viktor Suryan	Modeling of Infiltration Wells to Reduce Rainwater Runoff of Buildings	State Polytechnic of Sriwijaya
2	13.10-13.20	3860	Amiruddin, Ibrahim, Ika Sulianti, Agus Subrianto, Muhamad Ramadhan, Tiara Novia Khuljanna	Flexural Strength of Self-Compacting Concrete Beams	State Polytechnic of Sriwijaya
3	13.20-13.30	3940/4026	Lina Flaviana Tilik, Bambang Hidayat Fuady, Suhadi, Rosy Armaini, Fadhila Firdausa, Muhammad Rifqi Agusri, Puji Hartoyo	The Effect Of Shell As A Substitution Of Coard Aggregate With Superplasticizer Additional On The Compression Strength Of Concrete	State Polytechnic of Sriwijaya
4	13.30-13.40	3935	Kosim, Julian Fikri, Siswa Indra, Kiki Rizky Amalia, Intan Puspita Sari, Yudha Prasetya	Design of Geometric and Rigid Pavement Thickness on Jalan Lingkar Barat Sp. Sports Center - Bukit Sulap STA 0+100 - STA 7+583 Lubuklinggau City, South Sumatera Province	State Polytechnic of Sriwijaya
5	13.40-13.50	3907	Kosim, Zainuddin, Raja Marpaung, Darma Prabudi	Utilization Of Bottom Ash And Sawdust Waste As A Partial Replacement For Fine Aggregate In The Manufacture Of Concrete	State Polytechnic of Sriwijaya
6	13.50-14.00	3682	Efrilia Rahmadona, Norca Praditya, M. Ade Surya Pratama, Sudarmadji ,	Study On The Application Of Bicycle Special Routes As An Environmental Transportation In The City Area Of Palembang Using The Blos Method	State Polytechnic of Srwiwijaya

7	14.00-14.10	3854	Indrayani, Andi Herius, Akhmad Mirza, Arfan Hasan	Utilization of Remote Sensing Technology for Flood Distribution in Palembang City Web-based	State Polytechnic of Sriwijaya
8	14.10-14.20	3992	Indrayani, Aida Syarif, Syahirman Yusi, M. Noviansyah Nugraha, Renny Citra Ramadhani,	Utilization of the Kelekar River Flow as Micro-Hydro Power Plant	State Polytechnic of Sriwijaya
9	14.20-14.30	3804	Tresna Dewi, Rusdianasari, RD Kusumanto, Siproni	Image Processing Application on Automatic Fruit Detection for Agriculture Industry	State Polytechnic of Sriwijaya
10	14.30-14.40	3880	Tresna Dewi, Rusdianasari, Ahmad Taqwa, Teddy Wijaya	The Concept and Design of Solar Powered Sprinkler System Based on IOT Monitoring	State Polytechnic of Sriwijaya
11	14.40-14.50	3837	Herlinawati, Yusri Bermawi, Moch. Absor, A.Latif, Muhammad Dimas, Muhammad Arief M, Muhammad Geraeldy, Ibnusyah Alam	Rapid Transit (BRT) Public Transport Service Corridor I: Alang Lebar to Dempo during The Covid 19 Pandemic in The City of Palembang	State Polytechnic of Sriwijaya
12	14.50-15.00	4074	Mulyadi, Dodi Tafrant, Hendradinata, Zainuddin	The Effect of Quenching Media on the Hardness of AISI 1045 Steel	State Polytechnic of Sriwijaya
13	15.00-15.10	4107	Ibraham, Andi Herius, Nadra Mutiara Sari, M Aidil Iskandarsyah, M Okta Fathur Rahman	Improvement of Original Soil with Addition of Variation of Embankment Based on CBR (California Bearing Ratio) Value	State Polytechnic of Sriwijaya
14	15.10-15.20	4122	Nanda Yusril Mahendra, Dicky Pratama Putra, Imam Akbar, Risky Utama Putra, Akbar Teguh Prakoso, Muhammad Yanis, Hendri Chandra, Ardiyansyah Syahrom, Hasan Basri	Narrative Review of Subchondral Bone Morphology on Cartilage Damage (Osteoarthritis)	Universitas Sriwijaya
15	15.20-15.30	4124	Zainal Abidin, Irfan Ghani Fadhlurrahman, Imam Akbar, Risky Utama Putra, Akbar	Numerical Investigation of the Mechanical Properties of 3D Printed PLA Scaffold	Universitas Sriwijaya

			Teguh Prakoso, M. Zahri Kadir, Astuti, Ardiyansyah Syahrom, Hasan Basri		

TRACK 1
(Engineering and Science)

ROOM : 2
TIME : Thursday, 21 October, 2021/ 13.00 - 16.30
ARTICLES : 15
MODERATOR : Dr. Martha Aznury, M.Si./ Indah Purnamasari, M.Eng.

NO	Time	ID	AUTHORS	TITLE	AFFILIATION
1	13.00-13.10	3967	Yuniar, Tri Mawarni, Poedji Loekitowati Hariani, Muhammad Faizal, Tuty Emilia Agustina	Degradation Of Methylene Blue Dye Using ZnO/NiFe2O4 Photocatalyst Under Visible Light	Sriwijaya University, State Polytechnic of Sriwijaya
2	13.10-13.20	3985	Aida Syarif, Neli Masnila, Indrayani, M. Yerizam, Apriansyah Zulatama, Sarmidi	SYNGAS ANALYSIS OF LOWRANK COAL GASIFICATION DOWNDRAFT PRODUCTS WITH VARIATIONS IN AIR FLOW RATE	State Polytechnic of Sriwijaya
3	13.20-13.30	3764	Fajrie Agus Dwino Putra, Supli Efendi Rahim, Zulhipni Reno Saputra	Practical Learning Based on Virtual Reality Methods as a Solution to Increase Evaluation Level 1 Results in Practical learning at PT PLN (Persero) UPDL Palembang	PT PLN (Persero), Kader Bangsa University, Muhammadiyah University
4	13.30-13.40	3931/ 4093	Sofiah ,A.Rizal Aswan., Isnandar Yulianto,Cindi Ramayanti,Aliyah Nahda Utami	WITH THE TRAY DYER DRYING METHOD FOR MAKING HERBAL TEA FROM A MIXED FLOWER POLE (Clitoria ternatea) WITH GINGER POWDER (Zingiber officinale) ACCORDING TO INDONESIAN NATIONAL STANDARDS (SNI)	State Polytechnic of Sriwijaya
5	13.40-13.50	3782	Ida Febriana, KA Ridwan, Anerasari, Taufiq Jauhari, Defy Zuni Arrahma, Nuria Arryani Tasya	Prototype Of Kempelang Fish Dryers Reviewed From Energy Of H2O That Is Evaporated To Air	State Polytechnic of Sriwijaya

6	13.50-14.00	4054	Erlinawati, Aida Syarif, Arizal Azwan, Tahdid	ANALYSIS OF SYNGAS RESULTS OF THE MAINDEPTH COAL GASIFICATION PROCESS WITH GASIFICATION DOWNRAFT METHODS	State Polytechnic of Sriwijaya
7	14.00-14.10	3999	Ozkar F. Homzah, Rachmat D Sampurno, A Junaidi, Dodi Tafrant	Design and Performance of Small-scale downdraft biomass gasification: A case study of rice husks	State Polytechnic of Sriwijaya
8	14.10-14.20	4016	Aria Yopianita, Aida Syarif, Muhammad Yerizam	THE POTENTIAL OF CHAR COAL GASIFICATION AS AN ECO-FRIENDLY FUEL	State Polytechnic of Sriwijaya
9	14.20-14.30	3900	Martha Aznury, Ahmad Zikri, Aisyah Suci Ningsih, Siti Chodijah, Felisia Hanura, Muhammad Albarr Aksa, Nova Rachmadona	EFFECT OF SULFURIC ACID AND FERMENTATION TIME ON BIOETHANOL PRODUCTION FROM EMPTY FRUIT BUNCH (EFB)	State Polytechnic of Sriwijaya Department of Chemical Science and Engineering, Graduate School of Engineering, Kobe University, Japan
10	14.30-14.40	4041	Martha Aznury, Ahmad Zikri, Aisyah Suci Ningsih, Siti Chodijah, M.Arif Abdul Ghoni, Rizka Yuni Zhafira, Nova Rachmadona	UTILIZATION OF PALM KERNEL OIL (PKO) AS VEGETABLE OIL IN MAKING MAYONNAISE WITH THE ADDITION OF VIRGIN COCONUT OIL (VCO) AND Palm Cooking Oil (PCO)	State Polytechnic of Sriwijaya Department of Chemical Science and Engineering, Graduate School of Engineering, Kobe University, Japan
11	14.40-14.50	4042	Martha Aznury, Ahmad Zikri, Aisyah Suci Ningsih, Siti Chodijah, Elina Margaretty, Liona Agriani, Indriani, Nova Rachmadona	PRODUCTION OF SOLID SOAP WITH ADDITION OF GREEN BETAL LEAVE (Piper betle L.) EXTRACT AND LEFT LEMON EXTRACT (Cymbopogon nardus L. Rendle) AS ANTIOXIDANTS	State Polytechnic of Sriwijaya Department of Chemical Science and Engineering, Graduate School of Engineering, Kobe University, Japan
12	14.50-15.00	4043	Sahrul Effendi, Aida Syarif, Irawan	PURIFICATION OF RAW MATERIAL AND	State Polytechnic of Sriwijaya

				BIODIESEL PRODUCTS FROM WASTE OIL WITH DEEP EUTETIC SOLVENT (DES)	
13	15.00-15.10	4118	I Made Wiwit Kastawan, Erwin Yusuf, Rusmana, Krisna	FIELD EXPERIMENTAL STUDY ON ELECTRICAL POWER GENERATION USING AC SINGLE-PHASE PERMANENT MAGNET GENERATOR	Politeknik Negeri Bandung
14	15.10-15.20	4119	Siti Saodah, I Made Wiwit Kastawan, Erwin Yusuf, Bambang Puguh Manunggal, Maryanti	SIMULATION ON EFFECTS OF USING CAPACITOR FOR REACTIVE POWER (VAR) COMPENSATION ON ELECTRICAL POWER SUPPLY QUALITY	Politeknik Negeri Bandung
15	15.20-15.30	4066	Yohandri Bow, Abu Hasan, Rusdianasari, Zakaria, Bambang Irawan, sNedia Sandika	Biodiesel from Pyrolysis Fatty Acid Methyl Ester (FAME) using Fly Ash as a Catalyst	State Polytechnic of Sriwijaya

TRACK 1
(Engineering and Science)

ROOM : 3
TIME : Thursday, 21 October, 2021/ 13.00 - 16.30
ARTICLES : 14
MODERATOR : Fatahul Arifin, M.Eng, Ph.d./ Dr. Indrayani, S.T., M.T.

NO	Time	ID	AUTHORS	TITLE	AFFILIATION
1	13.00-13.10	3806	Norca Praditya, Indrayani, Andi Herius, Kosim, Tata Peryoga, Mendro Anggoro	Identification of Road Condition Survey Results on the Making of Map of Palembang City Road Network Based on GIS	State Polytechnic of Sriwijaya, IDN Western Australia
2	13.10-13.20	3889	Fatahul Arifin, RD Kusumanto, Yohandri Bow, Ahmad Zamheri, Rusdianasari, Min Wen Wang, Afries Susandi, Yusuf Dewantoro Herlambang	Modelling Design Diffuser Horizontal Axis Wind Turbine	State Polytechnic of Sriwijaya , National Kaohsiung University Science and Technology
3	13.20-13.30	3947	RD Kusumanto, Fatahul Arifin, Carlos R.S, Dicky Seprianto, Rusdianasari, Min Wen Wang, RM Fauzi, Yusuf Dewantoro Herlambang	Design Wind Turbine for Exhaust Wind Area Coal Mining	State Polytechnic of Sriwijaya National Kaohsiung University Science and Technology
4	13.30-13.40	4062	Leila Kalsum, Yordan Hasan, Rusdianasari, Aida Syarif, Dayaningrat, Syaiful M	The Production of Biogas and Electrical Energy from Market Waste at Fixed Dome Bio-digester in Talang Banjar Jambi	State Polytechnic of Sriwijaya
5	13.40-13.50	4087	Dian Nugraha, Febria Anjara, Safira Faizah	Comparison Progressive Web Application in Learning Management System (LMS)	Jakarta Global University
6	13.50-14.00	4047/4104	Yessi Marniati, Nofiansah, Herman Yani, Siswandi, Nur Aqilah Binti Mohamad, Mohamad Iqmal Hanafi	The Effectiveness of Solar panels From The Installation Location Changes In Angle and Light	State Polytechnic of Sriwijaya

			Bin Ahmad Hisham, Arkan Ghifari, Kerin Berliana		Politeknik Mukkah Sarawak Malaysia
7	14.00-14.10	4049	M. Zakuan Agung, Suzanzefi , R.A Halimatussa'diyah, Rapiko Duri, Dea Rahma Dona, Fitri Rahma Daliza	THE NUMBER OF VISITORS OF THE TELECOMMUNICATION ENGINEERING LABORATORY THE PANDEMIC TIME CORONA VIRUS DISEASE LIMITDURING2019 (COVID-19) BASED ON THE INTERNET OF THINGS	State Polytechnic of Sriwijaya
8	14.10-14.20	4051	Selamat Muslimin, Renny Maulidda, Evelina, M. Nawawi, Iskandar Lutfi, Johansyah Al Rasyid, M. Fadli, Puput Anggraini, M. Yusuf Wanda, Merian PA	Energy Management on Electric Vehicles Using Fast Charging Banking Capacitor using Internet of Things (IoT) System	State Polytechnic of Sriwijaya
9	14.20-14.30	4064	Yudi Wijanarko, Renny Maulidda, Masayu Anisah, Evelina, Sara Yulida, Tarisa Ramadhani, Philips Dharmaraj, Metrina Jasman.	Implementation of Solar Cells as an Alternative Energy Source for Automatic Water Tank Filling in Hydroponic System	State Polytechnic of Sriwijaya Politeknik Kota Kinabalu, Malaysia
10	14.30-14.40	3786	Masayu Anisah, Yudi Wijanarko, Renny Maulidda, Johansyah Al Rasyid, Dimas Prasetya WP, M. Dandy Ramadhan, Mohammad Noviansah	Implementation of Smart Grid System for Alternative Energy Power Plants Sources	State Polytechnic of Sriwijaya
11	14.40-14.50	3790	Yudi Wijanarko, Adi Syakdani, Ekawati Prihatini, Sairul Effendi, Aulia Rizki Utami, Trigitha Melintika, Ryo Pakusadewo	Implementation Of Smart Grid System On Alternative Energy Of Floating Houses At Musi River Bank Estuary Of The Ogan River	State Polytechnic of Sriwijaya
12	14.50-15.00	4063	Leila Kalsum, Idha Silviyati, Jenie Fahlevi Putri	The Effect of Carbonization Temperature and Concentration of KOH Activator on the Quality of	State Polytechnic of Sriwijaya

				Eucalyptus Pellita Actived Carbon in Fe Absorption	
13	15.00-15.10	4101	Ekawati Prihatini, Yudi Wijanarko, Yeni Irdayanti, Herman Yani, Muhammad Aldo Pratama, Suryani, Charles Sumion	SOLAR PANEL AS ALTERNATIVE ENERGY SOURCE FOR WATER PUMP CONTROL SYSTEM AT THE FLOATING HOUSE IN THE PALEMBANG MUSI RIVER BANK	State Polytechnic of Sriwijaya Politeknik Kota Kinabalu
14	15.10-15.20	4103	Selamat Muslimin, Zainuddin Nawawi, Bhakti Yudho Suprapto, Tresna Dewi	Comparison of Batteries Used in Electrical Vehicles (A Review)	University of Sriwijaya

TRACK 2
(Computer Science, Computer Engineering, Information System, Informatics Management)

ROOM : 4
TIME : Thursday, 21 October, 2021/ 13.00 - 16.30
ARTICLES : 13
MODERATOR : Rika Sadariawati, M.Si./ M.Miftakhul Amin, S.Kom., M.Eng

NO	Time	ID	AUTHORS	TITLE	AFFILIATION
1	13.00-13.10	3791	Muhammad Firdaus Jauhari, Rusmini Sri Maryati, Raihan	Design of Touch Key-Voice Command Based Vehicle Additional Security System	State Polytechnic of Banjarmasin
2	13.10-13.20	3694	Eka Susanti, Ica Admirani, Romi Wilza , Irawan Hadi, Sholihin	AUTOMATION OF THE PALEMBANG SEMAGE FABRIC YARN SPINNER	State Polytechnic of Sriwijaya
3	13.20-13.30	4020/4088	Raswa, Sumarudin, Eka Siswantohadi	WebRTC Signaling Using npRTC for Online Virtual Classroom	Politeknik Negeri Indramayu
4	13.30-13.40	3730	Nelly Masnila, Hendradinata, Indra Griha Tofik Isa, Riana Mayasari	IoT-Based Technological Innovation in Improving the Productivity of Macan Kumbang Fish Cultivator	State Polytechnic of Sriwijaya
5	13.40-13.50	3777	Hetty Meileni, Indra Satriadi, Sony Oktapriandi, Desi Apriyanty	TPACK FRAMEWORK BASED INTERACTIVE DIGITAL LEARNING	State Polytechnic of Sriwijaya
6	13.50-14.00	3788	M Aris Ganiardi, Nita Novita, Indri Ariyanti, Delta Khairunnisa	Development Of Multi Platform Geographic Information System Assessment Of Prospective Bidikmisi Students Using Reuse Driven Software Development Process Method	State Polytechnic of Sriwijaya
7	14.00-14.10	3797	Sholihin, Emilia Hesti, Sarjana, Adewasti	Development Of 3d Multimedia As A Learning Tools Online Based Virtual Reality	State Polytechnic of Sriwijaya

8	14.10-14.20	3799	Mohammad Fadhli, Asriyadi, Lindawati, Irma Salamah, Gita Affrylia, Michelle Valerie, Andi Ramadhan	Low Cost Air Quality Monitoring System Using LoRa Communication Technology	State Polytechnic of Sriwijaya
9	14.20-14.30	3861/4028	Suzan Zefi, Eka Susanti, M. Zakuan Agung, R.A Halimatussa'diyah , Bong Siaw Wee, M.Hanif, M.Tri Haji	Innovation Technology Of Lekor Dough Mixer Based Internet Of Thing	State Polytechnic of Sriwijaya, Polytechnic of Mukkah, Sarawak - Malaysia
10	14.30-14.40	3857/4029	Martinus Mujur Rose, Sholihin, Sarjana, Abdul Rakhman, Ali Nurdin, Nurul Akmal Binti Kamaruddin, Ahmad Marlianto, Salwa Rizka Khoirunnisa	Development Of 3d Multimedia As A Practical Suggestion For Virtual Reality-Based Digital Engineering	State Polytechnic of Sriwijaya, Polytechnic of Mukkah, Sarawak - Malaysia
11	14.40-14.50	3521	M. Miftakul Amin, Adi Sutrisman , Yevi Dwitayanti	Single Page Application for Business Intelligence Dashboard	State Polytechnic of Sriwijaya
12	14.50-15.00	4025	Leni Novianti, Indra Griha Tofik Isa, Indri Ariyanti, Rika Sadariawati, Anitawati Mohd Lokman, Azhar Bin Abd Aziz, Afiza Binti Ismail	Evaluating Users' Emotion in Web-Based Geographic Information System	State Polytechnic of Sriwijaya, Universiti Teknologi MARA, Shah Alam, Malaysia
13	15.00-15.10	3535	M. Miftakul Amin, Yevi Dwitayanti	The Best Academic Administration Personnel Selection Model Using the Weighted Sum Model (WSM)	State Polytechnic of Sriwijaya,

TRACK 2
(Computer Science, Computer Engineering, Information System, Informatics Management)

ROOM : 5
TIME : Thursday, 21 October, 2021/ 13.00 - 16.30
ARTICLES : 12
MODERATOR : Dr. Nyayu Latifah H, MT./ Hj. Lindawati, S.T., M.TI

NO	Time	ID	AUTHORS	TITLE	AFFILIATION
1	13.00-13.10	3800	Fatma Indah Sari, Dewi Permata Sari, Nyayu Latifah Husni	Design Of Monitoring And Control Of Garbage Robot (G-Bot) Using Web Platform And Mobile Phone Based On The Internet Of Things (Iot)	State Polytechnic of Sriwijaya
2	13.10-13.20	3990	Sopian Soim, Abu Hasan, Ade Silvia Handayani, Rivaldo Arviando	Design of a 4G signal amplifier repeater biquad antenna at 1800 MHz	State Polytechnic of Sriwijaya
3	13.20-13.30	3988	Ciksadan, Sopian Soim, Ade Silvia Handayani, Emilia Hesti, Nyayu Latifah Husni,	Design and Configuration of 4G Repeater Booster Device at 1800MHZ	State Polytechnic of Sriwijaya
4	13.30-13.40	3863	Dewi Irmawati, Devi Sartika, Ienda Meiriska, Leni Novianti	Multimedia Development As Creativity In The Socialization Of Covid19 Vaccination Against The Public	State Polytechnic of Sriwijaya
5	13.40-13.50	3767	Irawan hadi, Martinus Mujur Rose, Adewasti, Ciksadan	Performance Optimatmization Of Yagi Antenna Devices For Detecting Quality Levels River Water Based On The Internet Of Thing	State Polytechnic of Sriwijaya
6	13.50-14.00	4032	Ahmad Taqwa, Ade Silvia Handayani, Carlos RS, Rahmat Budiarto, Ihsan M, Junio Andika Danda	Preliminary study: M-Health based on IoT and Machine Learning	State Polytechnic of Sriwijaya AlBaha University, KSA

7	14.00-14.10	3989	Ade Silvia Handayani, Ahmad Taqwa, Irawan Hadi, Martinus Mujur Rose, Nyayu Latifah Husni, Ratri Agustina	Analysis of Android-based Body Health Monitoring System Results using Fuzzy Mamdani Method	State Polytechnic of Sriwijaya
8	14.10-14.20	4035	Ade Silvia Handayani, Sopian Soim, Carlos RS, Syifa Amira Zahra, Elisa Islami Putri	Design of Application an Intelligent Transportation System for Monitoring Traffic Accidents	State Polytechnic of Sriwijaya
9	14.20-14.30	4096	Leni Novianti, Robinson, Ienda Meiriska, Resti Atika Sari	GEOGRAPHIC INFORMATION SYSTEM MAPPING AND MANAGEMENT OF CHILD WITH THE HIGHEST NUTRITIONAL POTENTIAL IN PRABUMULIH CITY USING K-MEANS CLUSTERING METHOD (CASE STUDY: PRABUMULIH CITY HEALTH OFFICE)	State Polytechnic of Sriwijaya
10	14.30-14.40	4098	Jayah, Leni Novianti, Ida Wahyuningrum	COVID 19 Detection Application At Siti Fatimah Hospital Method of Using Deep Learning	State Polytechnic of Sriwijaya
11	14.40-14.50	4114	Nyayu Latifah Husni, Putri Adelia Rahma Sari, Tresna Dewi, Ade Silvia Handayani, Devi Sartika, Akhmad Mirza	Visual Studio Code for Activity Monitoring Interface	State Polytechnic of Sriwijaya
12	14.50-15.00	4111	Nyayu Latifah Husni, Putri Adelia Rahma Sari, Ade Silvia Handayani, Yeni Irdayanti, A. Rakhman, Hairul, Seyed Amin Hosseini Seno, Wahyu Caesarendra	Solar Panel Analysis for Activity Monitoring System	State Polytechnic of Sriwijaya Ferdowsi University of Mashhad, Iran Universiti Brunei Darussalam

TRACK 3 (Social Science)

ROOM : 6
TIME : Thursday, 21 October, 2021/ 13.00 - 16.30
ARTICLES : 13
MODERATOR : Doeslohal Djumrianti, S.E.MIS., Ph.D/ Dr. Marieska Lupikawati

NO	Time	ID	AUTHORS	TITLE	AFFILIATION
1	13.00-13.10	3847	Ayu Chotibah, Bainil Yulina, Desi Apriyanty, Evada Dewata, Pridson Mandiangan	THE INNOVATION OF SOUTH SUMATERA TRADITIONAL BATIK E-COMMERCE APPLICATIONS	State Polytechnic of Sriwijaya
2	13.10-13.20	3683	M. Thoyib, Riza Wahyudi, Firmansyah, Darul Amri	THE ANALYSIS OF COST QUALITY ON PRODUCTIVITY OF IRON RAILING PRODUCTS IN SMALL AND MEDIUM BUSINESS IN PALEMBANG	State Polytechnic of Srwiwijaya
3	13.20-13.30	3757/3756	Nelly Masnila, Firmansyah, Jovan Febriantoko, Riana Mayasari, Jamaliah Said	Quality of Financial Reporting and Impact of GGG Implementation: Study on Local Government in Indonesia	State Polytechnic of Sriwijaya
4	13.30-13.40	3796	Evi Agustina Sari, Sri Gustiani, Yusri, Tiur Simanjuntak	An Error Analysis of English Sentence Construction in Writing Subject Made by the Students of the English Department at Sriwijaya State Polytechnics	State Polytechnic of Sriwijaya
5	13.40-13.50	3827	Edwin Frymaruwah, Farah Aida Ahmad Nadzri, Periansya, Evada Dewata	DISCLOSURE OF SUSTAINABLE PERFORMANCE IN HIGHER EDUCATION IN INDONESIA	State Polytechnic of Sriwijaya, UiTM
6	13.50-14.00	3976	Hendra Hadiwijaya Febrianty Rezania Agramanisti Azdy	Improvement of LPKA Class 1 Palembang Electronic Dashboard with Field Performance Monitoring	Palcomtech Polytechnic, STMIK PalComTech

7	14.00-14.10	3853/4034	Neneng Miskiyah, Purwati, Yulia Pebrianti, Keti Purnamasari, Nyimas Miftahul Jannah, Rina Dwi Aprianti, Tiara	OPTIMIZATION OF INCOME PARAMETERS OF SONGKET CRAFTSMEN ON KOPERASI SONGKET PALEMBANG	State Polytechnic of Sriwijaya
8	14.10-14.20	3994	Marieska Lupikawaty, Neneng Miskiyah, Purwati, Keti Purnamasari, Julito Contado Aligaen	Welfare Evaluation of the Duck Breeding in Gandus Subdistrict, Palembang	State Polytechnic of Sriwijaya, Iloilo Science, and Technology University Philippines
9	14.20-14.30	3995	Dinda Febriani, Marieska Lupikawaty, Al Hushori, Haris Wilianto	Stock Price Valuation Using the Dividend Discount Model on IDX Mining Period 2011-2020	State Polytechnic of Sriwijaya
10	14.30-14.40	4019	Desloehal Djumrianti, Rita Martini, Ikhtison Mekogga, Alfitriani	Digital Branding Model for Jumputan and Songket Fabrics: as a Continuity Strategy for Marketing Palembang Local Products	State Polytechnic of Sriwijaya
11	14.40 - 14.50	4023	Muhammad Husni Mubarok, Desi Indriasari, Eka Jumarni, Indra Satriawan	Perceptions of Use of Food Delivery Applications and Its Impact on Sales of Culinary Traders in Palembang City	State Polytechnic of Sriwijaya
12	14.50-15.00	4038	Yahya, M. Yusuf, Elisa, Yusnizal Firdaus, AlHushori, Suyatno Ladigi, Dafa Aulia, Tarisa	Effect of Labor, Technology and Experience On Productivity of Rubber Smallholders In Kabupaten Banyuasin With Training as Moderating Variables	State Polytechnic of Sriwijaya Sosial Sains Gunaan, Universiti Sultan Zainal Abidin, Terengganu, Malaysia
13	15.00-15.10	4075	Niken Ayuningrum, Dian Ofasari	DETERMINATION OF THE PERFORMANCE OF LOCAL GOVERNMENTS WITH AUDIT OPINIONS AS MODERATION VARIABLES IN SOUTH SUMATRA	Sekayu Polytechnic

TRACK 3 (Social Science)

ROOM : 7
TIME : Thursday, 21 October, 2021/ 13.00 - 16.30
ARTICLES : 14
MODERATOR : Dr. Sari Lestari ZR/ Dr. Rita Martini

NO	Time	ID	AUTHORS	TITLE	AFFILIATION
1	13.00-13.10	3872	Hikmah, Andalan Tri Ratnawati, Susetyo Darmanto	The Role of Product Differentiation and Word of Mouth Promotion on Purchase Decision of Creative Industrial Products In Semarang City Waste Bank	Universitas 17 Agustus 1945 Semarang
2	13.10-13.20	3893/4055	Rosy Armaini, Maria Maria, Leni Noviyanti, Yevi Dwitayanti, Lara Okfa, Jessica Valentina, Susi Rahmayanti	ACCOUNTING COMICS AS A MEDIUM OF LEARNING	State Polytechnic of Sriwijaya
3	13.20-13.30	3915	Ambarwati, Risma, Iswan, Salsabila Rahmadina Putri, Ridho, Sari Lestari Zainal, Jauhari Hadi, Paisal, Afrizawati	The Effect of Servicescape on Tourist Revisit Intention at Water Sports and Recreation Tourism Destination	State Polytechnic of Sriwijaya
4	13.30-13.40	3949	Sherly Amerta Agustina, M. Thoyib, Nurhasanah	THE FACTORS AFFECTING REGIONAL EXPENDITURES ON REGENCY/MUNICIPALITY IN SOUTH SUMATERA PROVINCE	State Polytechnic of Sriwijaya
5	13.40-13.50	3981	Maitsarana Ishmaturahwa, Sulaiman, Rita Martini, M. Thoyib, Kartika Rachma Sari	Evaluation of Regional Financial Management Based on Local Government Information Systems	State Polytechnic of Sriwijaya
6	13.50-14.00	3983	M.Thoyib, Rita Martini, Tarisa Salsabella, Marsahanda Aprilia	FINANCIAL PERFORMANCE ANALYSIS AT PT BANK MUAMALAT INDONESIA, Tbk.	State Polytechnic of Sriwijaya

7	14.00-14.10	3771	Rita Martini, Endah Widyastuti, Sukmini Hartati, Zulkifli, Mardhiah	Poverty Reduction in South Sumatera with Optimization of Village Funds, Allocation of Village Funds, and Village Original Income	State Polytechnic of Sriwijaya
8	14.10-14.20	3855/4089	Sukmini Hartati, Rita Martini, Desri Yanto, Indriani Indah Astuti, Kartini Binti Ibrahim , Muhamad Arya Kurnia Rahmadi, Lilis Eliyana	PROFITABILITY, COMPANY SIZE, AUDIT DELAY, AND FINANCIAL REPORTING DELAYS IN COVID-19 PANDEMIC ERA (MANUFACTURING COMPANIES REGISTERED IN INDONESIA STOCK EXCHANGE 2018-2020)	State Polytechnic of Sriwijaya, Polytechnic of Mukah
9	14.20-14.30	4001	Sovi Julianda Wahya, Sukmini Hartati, Eka Jumarni Fithri, Rita Martini	Hotel and Restaurant Taxes Role to the Local Original Revenue of Regency/City in South Sumatera	State Polytechnic of Sriwijaya
10	14.30-14.40	4009/4033	Nurya Mellinda, Afrizawati, Elisa, M.Riska Maulana Effendi, Paisal, Alia Putri Benari, Nadia Dwi Putri	THE CALCULATION OF PRODUCT COMBINATION BY USING LINEAR PROGRAMING SIMPLEX METHOD TO PROFIT MAXIMIZE AT ROTI SAHABAT PALEMBANG CITY	State Polytechnic of Sriwijaya
11	14.40-14.50	4013	Ridho, Sari Lestari Zainal, Sabli, Habsah Binti Haji Mohamad, Ibrahim, Kartini Binti Che, Jauhari, Hadi, Detmuliati, Alditia, Alfitriani, Putri, Anggita Prameswari Pracena	The Factors Affecting Food Delivery Application Users Shopping Routine Behavior during the Covid-19 Pandemic	Politeknik Negeri Sriwijaya, Politeknik Mukah, Mukah, Sarawak, Malaysia
12	14.50-15.00	4053	Rita Martini, Fildzah Rahmah Satirah, Nurhasanah, Kartini binti Che Ibrahim, Kartika Rachman Sari5, Endah Widyastuti, Farida Husin, Amelia Agustia Riskya Saputri	Internal Control System Affects the Quality of Financial Report Information Palembang City Government	Politeknik Negeri Sriwijaya, Politeknik Mukah, Mukah, Sarawak, Malaysia

13	15.00-15.10	4076	Evada Dewata, Elfira Hidayanti, Yuliana Sari, Hadi Jauhari	GOOD GOVERNANCE AND INTERNAL CONTROL ON THE PREVENTION OF FRAUD IN THE PROCUREMENT OF GOODS AND SERVICES FOR GOVERNMENT AGENCIES	Politeknik Negeri Sriwijaya,
14	15.10-15.20	4078	Fipiariny, Nurhayati	INFLUENCE OF INDEPENDENCE, DUE PROFESSIONAL CARE AND ACCOUNTABILITY ON AUDIT QUALITY ON THE AUDIT BOARD OF THE REPUBLIC OF INDONESIA REPRESENTATIVE PROVINCE OF SOUTH SUMATRA	Anika Palembang Polytechnic

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INFLUENCE OF INDEPENDENCE, DUE PROFESSIONAL CARE AND ACCOUNTABILITY ON AUDIT QUALITY ON THE AUDIT BOARD OF THE REPUBLIC OF INDONESIA REPRESENTATIVE PROVINCE OF SOUTH SUMATRA

ID: 4078

Fipiariny. S[1], Nurhayati[2]
[1-2]Accounting Study Program, Anika Palembang Polytechnic

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ABSTRACT

This research aims to find out the influence of independence, due professional care and accountability on the quality of audits in the CPC of the Republic of Indonesia Representative of South Sumatra Province. The data collection method in this study is a questionnaire distributed to BPK auditors. Of the 40 questionnaires distributed as many as 32 questionnaires are filled and complete and can be research data. The results of this study are the independence of BPK auditors and Due Professional Care BPK auditors have a positive and significant effect on the quality of audits, while accountability has no effect on the quality of audits. Simultaneous hypothesis tests show the independence of BPK auditors, Due Professional Care and auditor accountability is influential and significant to the quality of the audit

Keywords: : Independence, due professional care, accountability and audit quality.

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Biodiesel from Pyrolysis Fatty Acid Methyl Ester (FAME) using Fly Ash as a Catalyst

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ABSTRACT
Biodiesel is an environmentally acceptable alternative fuel that has no negative health effects and may be used in vehicles to cut emissions when compared to regular oil. Biodiesel can be produced from the pyrolysis process of Fatty Acid Methyl Ester (FAME) using a fly ash catalyst. The purpose of this study was to obtain biodiesel with a low water content of hygroscopic nature. The pyrolysis process using fly ash catalyst occurs in a temperature range of 141-200^{o}C, which has an initial boiling point (IBP) of 151^{o}C. The results showed that the characteristics of the biodiesel produced were following the standards of the Director General of Oil and Gas, namely density 842,500- 847,500 kg/m^3, viscosity 3.053-3,371 cSt, CCI of 48.7-49.7^{0}C at 181-200^{o}C, flash point 58-59^{0}C, content water 223- 218 ppm, and sulphur content of 700 ppm.

Keywords: *biodiesel, FAME, fly ash catalyst*

1. INTRODUCTION

Human activities cannot be separated from the use of fuels derived from fossil energy. The intensity of uncontrolled use and lack of energy conservation poses a problem in fossil fuels availability. The limited reserves of this energy source require serious attention, such as looking for other alternatives by optimizing the use of renewable energy sources. However, the alternatives developed must be able to produce energy in large quantities at low costs and have minimal impact on the environment to replace the fossil energy [1]-[3].

The use of renewable energy sources in the form of biofuels needs to be increased. Considering that the need for fossil fuel sources is increasing every year and these fuels are limited and expensive, it encourages various research and developments to get fuel that is cheaper, environmentally friendly, and from renewable natural materials [4]-[6].

Biodiesel is a biomass-based fuel that can be used to replace petroleum-based diesel. One of the benefits of biodiesel fuel is that it is a renewable energy source that is more environmentally friendly than fossil fuels because it emits far fewer greenhouse gases than fossil fuels. As a result, biodiesel has the potential to solve energy issues in emerging countries, particularly those that do not produce oil [7].

Biodiesel is an alternative fuel from renewable sources with fatty acid ester compositions from vegetable oils, including palm oil, coconut oil, jatropha oil, kapok seed oil. There are still more than 30 kinds of Indonesian plants that have the potential to be used as biodiesel [8]-[10].

The use of vegetable oils directly as fuel for diesel engines has problems, mainly related to the properties of vegetable oils, namely high viscosity, low volatility, and containing unsaturated compounds / more than one double bond (polyunsaturated). However, these properties can be improved in several ways, namely pyrolysis, microemulsification, dilution, and transesterification [11][12].

Based on the content of free fatty acids in vegetable oil, the commercial biodiesel production process usually uses homogeneous catalysts, such as esterification with an acid catalyst and transesterification with a base catalyst. However, the use of this homogeneous catalyst can cause problems in the resulting product, for example, a product that still contains a catalyst, so it must be separated again. In this study, a catalyst was used from coal ash waste (fly ash) which was activated

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so that it would facilitate the separation of the catalyst from the product. Fly ash has a hollow structure composed of several porous oxides, such as SiO_2, Al_2O_3, Fe_2O_3, MgO, and CaO [13]-[15].

Making biodiesel from CPO can be done through esterification and transesterification reactions to convert oil (triglycerides) into fatty acid methyl esters. The content of free fatty acids (FFA) in CPO raw materials is one of the determining factors for the method of making biodiesel. One form of utilization of CPO is processed into FAME so that the specifications are close to petroleum diesel specifications. The study aimed to obtain biodiesel from Fatty Acid Methyl Ester (FAME) through a pyrolysis process using a fly ash catalyst that had been activated using 1M NaOH, the concentration of the catalyst used was 10%. This biodiesel product is tested for quality based on the value of density, flash point, boiling point, water content and sulphur content of each temperature range which refers to the characteristics and specifications of the quality requirements of the Director General of Oil and Gas [16]-[18].

2. MATERIAL AND METHOD

2.1. Material and Equipment

The FAME that will be utilized as a sample will be obtained from the tank drainer (the part of the tank that serves to take samples or materials in the tank). After allowing the sample to sit for three days, it was deposited. Figure 1 depicts the pyrolysis apparatus used in the conversion process. Supporting equipment for product analysis includes viscometers, density meters, flash point meters, X-ray sulphur, Karl Fisher Moisture Measurement, and calculated cetane index (CCI).

2.2. Sampling Method

The pyrolysis process is carried out in a pyrolysis unit with a 7-liter capacity. The cracking process at temperatures ranging from 161 to 170 ^oC, 171 to 180 ^oC, 181 to 190 ^oC, and 191-200 ^oC. The volume of liquid fuel produced was measured and recorded. In addition, the condensate is measured with a measuring cup in order to quantify its volume and study its qualities.

2.3. Sampling Testing

The density, viscosity, cetane number, flash point, water content, and sulphur content of the fuel product produced from the pyrolysis process with FAME as the raw material are all measured to determine biodiesel quality. To establish the quality of biodiesel obtained from the pyrolysis process, a study examined at the qualities of biodiesel fuel parameters. The parameters of the resulting fuel are compared to those of PT Pertamina RU III biodiesel to see if there is a drop in quality or if they remain the same, including water content. For 5 days, data was retrieved at temperatures ranging from 161^oC to 200^oC [19].

Figure 1. tool

Caption:
1. Reactor,
2. Condenser,
3. Preheater,
4. Stainless steel shell,
5. Pressure control,
6. Thermo Control,
7. Control Valve,
8. Water cooler (inlet),
9. Water cooler (outlet),
10. Output Product,
11. Liquid fuel product tank

3. RESULTS AND DISCUSSION

3.1. Characteristic of Fly Ash as Catalyst

The fly ash catalyst, which is coal fly ash from the boiler combustion chamber, was tested for its characteristics. Using an Inductivity Coupled Plasma (ICP) instrument, a characteristic test is performed to determine the components present in the fly ash catalyst.

Table 1. The results of an ICP investigation of the Fly Ash catalyst's properties

Sample	Analysis Parameters	Method	Unit	Results
Fly Ash	Al	IP 501/ASTM D 5184	%	7.52
	Si		%	24.44
	Fe		%	46.18
	Ca		%	16.36
	K		%	0.32
	Mn		%	0.44
	Ni		%	0.88
	Cu		%	0.08
	Zn		%	0.01
	V		%	0.01

Based on the table, the content of Fe and Si elements is more significant percentage than other elements. Furthermore, can be concluded based on the composition *fly ash* entry class f (SiO_2 + Al_2O_3 + Fe_2O) > 70 % derived from bituminous coal [19].

3.2. Characteristics of FAME as raw material

Characteristic results obtained after deposition of at least 3 (three) days n to determine the characteristics of FAME before using raw materials. The results obtained for the cetane number, density, viscosity, sulphur content, flash point and color are still within the minimum and maximum limits, while the water content is still above the maximum limit, the value can be seen in Table 2.

Table 2. Result of FAME analysis as raw material

Characteristics	Units	Results
Cetane Number	--	58.3
Density @ 15 °C	kg/m^3	854
Viscosity @ 40 °C	mm^2/sec	4.83
Sulphur Content	% m/m	0.07
Evaporation point @ Distillation 90% (vol)	°C	333
Flash Point	°C	152
Moisture Content	mg/kg	623
Colour	-	1

3.3. The density of biodiesel from FAME pyrolysis at temperature range of 141-200 °C

The calorific value and power produced by the combustion process of fuel are affected by density. A high density value indicates that the fuel contains a large number of components. This component will increase the calorific value of the fuel combustion process by extending the atomization process of the fuel components during the combustion process.

According to the Director General of Oil and Gas's quality standard, the required density for biodiesel is 815-860 kg/m^3 at 15 ^{0}C. A density value that meets the required quality standards can produce a complete combustion reaction in the engine, whereas a density value that exceeds the standard causes the combustion reaction to become imperfect, increasing emissions and engine wear. Figure 2 depicts the results of the analysis of the density value of biodiesel fuel [20].

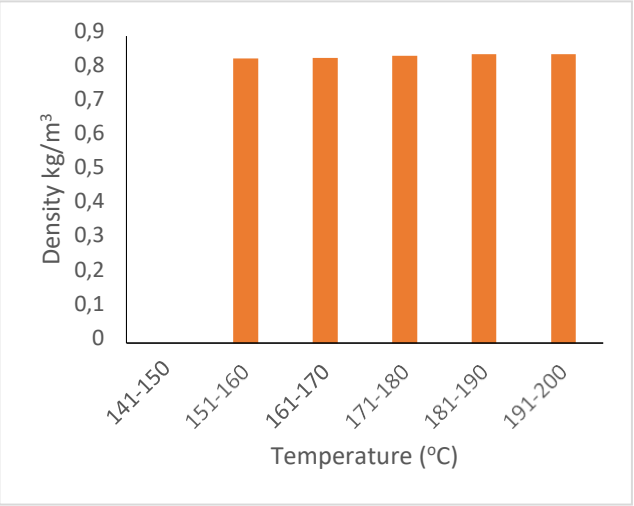

Figure 2. Biodiesel Density Result of FAME Pyrolysis

Figure 2 shows that for the composition of FAME raw materials with Fly Ash catalyst starting from a temperature of 151-160°C with a density of 0.8350 kg/m^3, 161-170°C density 0.8360 kg/m^3, 171-180°C density 0.8425 kg/m^3, 181-190°C density 0.8465 kg/m^3 and 191-200°C density 0.8475 kg/m^3. All of them obtained the results of density analysis between the minimum and maximum limits of the required quality standards. When viewed from the temperature range, the density value of the biodiesel product is heavier if the biodiesel product is obtained at a higher temperature [21].

3.4. Viscosity of biodiesel resulting from FAME pyrolysis at temperature range of 141-200 °C

A high viscosity will increase friction loss in the pipe, make the pump work harder, and complicate the filtering process, increasing the possibility of dirt settling and fuel fogging. A low viscosity causes the lubrication to thin, causing wear and damage to the combustion engine [22].

FAME's kinematic viscosity is nearly twice that of diesel oil, which is critical for engine lubrication. FAME is a vegetable-derived material with low sulphur and aromatics content. Furthermore, the level of Particulate Matter emissions produced is lower (PM). The required biodiesel viscosity value at 40 oC, according to the Director General of Oil and Gas, is 2.0-4.5 cSt.

Figure 3 depicts the results of an analysis of the viscosity value of biodiesel fuel. Figure 3 shows that for the composition of FAME raw materials with Fly Ash catalyst starting from a temperature of 151-160°C with a viscosity of 2.459 cSt, 161-170°C viscosity 2.652 cSt, 171-180°C viscosity 3.053 cSt, 181-190°C viscosity 3.262 cSt and 191-200°C viscosity 3,371 cSt. When viewed from the temperature range, the viscosity value of biodiesel products is greater if the biodiesel yields are obtained at higher temperatures [23].

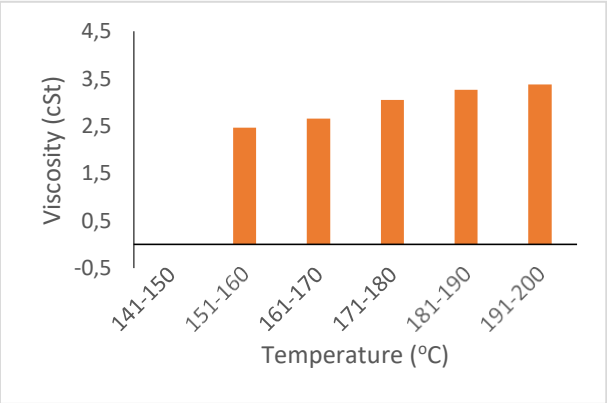

Figure 3. Biosolar Viscosity of FAME Pyrolysis

3.5. Calculated cetane index (CCI) of biodiesel from FAME pyrolysis at temperature range of 141-200 °C

The cetane number is a number that shows the results of testing the combustion quality of a diesel fuel by comparing the reference fuel with the known cetane number in advance. The FAME cetane number according to SNI is at least 51, while the standard for petroleum diesel according to the Director General of Oil and Gas is at least 48 and the Calculated Cetane Index (CCI) is at least 45.

The cetane number indicates how quickly diesel engine fuel can be injected into the combustion chamber so that it burns spontaneously in the engine. The cetane number of petroleum diesel is influenced by the structure of the constituent hydrocarbons. The lower the cetane number, the lower the ignition quality because it requires a higher ignition temperature.

FAME has a higher cetane number or calculate cetane index (CCI) than petroleum diesel, making it ideal for boosting auto-ignition in diesel engines. The more devils there are, the longer the fatty acid's carbon chain is and the more saturated the molecule is [24].

The results of the CCI analysis of biodiesel fuel at various temperature ranges can be seen in Figure 4.

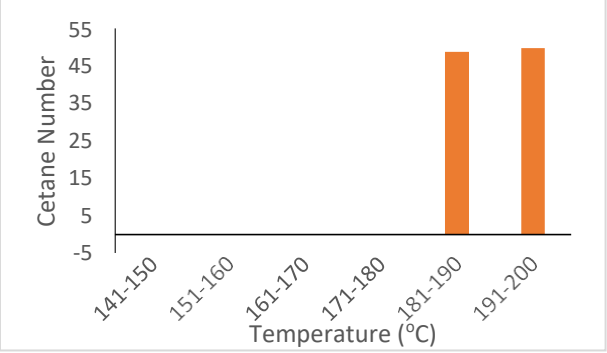

Figure 4. Calculated Cetane Index (CCI) of FAME Pyrolysis

The ASTM D613-80 method is a measurement method in determining the quality of biodiesel combustion or also said to determine the cetane number of diesel fuel, for the composition of FAME raw materials with Fly Ash catalyst starting from a temperature of 181-190°C with a cetane number of 48.7 and 191-200°C a cetane number of 49.7. The temperature range obtained by the CCI analysis value is above the minimum quality limit required by the Director General of Oil and Gas.

3.6. Flash point of biodiesel from FAME pyrolysis at temperature range of 141-200 °C

The flash point value of FAME is much higher than the flash point value of petroleum diesel, so the blending formulation with more FAME composition will result in the flash point of the biodiesel produced also increasing. The flash point of biodiesel also increased every week for one month of storage. Referring to the quality requirements of the Director General of Oil and Gas, the flash point of each biodiesel product composition has passed the minimum required limit [25]. In the quality requirements of the Director General of Oil and Gas, the flash point value is set at a minimum value of 52°C for petroleum-based diesel fuel. The flash point value (flash point) of biodiesel fuel that has been obtained from this study can be seen in Figure 5.

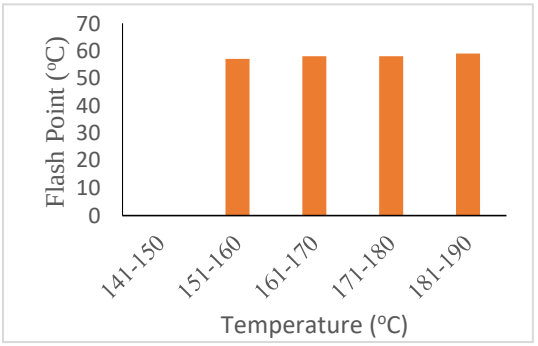

Figure 5. Flash Point of Biodiesel Results of Pyrolysis

Figure 5 shows that for the composition of FAME raw materials with Fly Ash catalyst starting from a temperature of 151-160°C with a flash point of 57°C, 161-170°C flash point 58°C, 171-180°C flash point 58°C, 181-190°C flash point 58°C and 191-200°C flash point 60°C. All of them obtained the results of flash point analysis above the minimum required quality standard. When viewed from the temperature range, the flash point value of biodiesel products is higher if the biodiesel yields are obtained at higher temperatures [26].

3.7. The water content of biodiesel from FAME pyrolysis at temperature range of 141-200 ºC

In some countries with winters, the water content in diesel engine fuel might crystallize, obstructing the passage of fuel via the injectors. Furthermore, water can promote corrosion and the growth of microorganisms, which can clog the combustion chamber and prevent fuel from entering. Clogging and engine damage can also be caused by sediment [27].

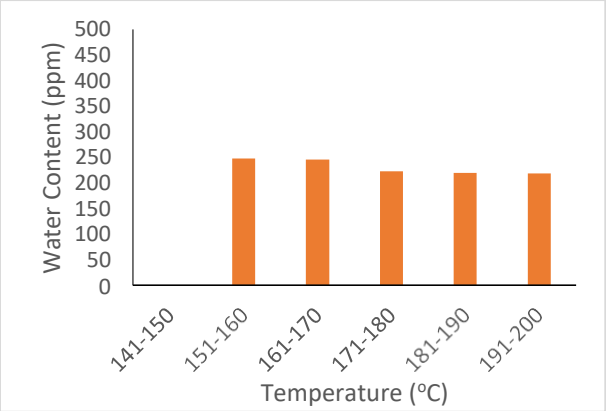

Figure 6. Water content of FAME Pyrolysis Results

Figure 6 shows that for the composition of FAME raw materials with Fly Ash catalyst starting from a temperature of 151-160ºC with a water content of 248 ppm, 161-170ºC water content 245 ppm, 171-180ºC water content 223 ppm, 181-190ºC water content 219 ppm and 191 -200ºC water content 218 ppm. All water content analysis results are below the maximum required quality standard and are in accordance with the objectives of this study. When viewed from the temperature range, the value of the water content of biodiesel products is less if the biodiesel yields are obtained at higher temperatures.

3.8. Sulphur content of biodiesel resulting from FAME pyrolysis at a temperature range of 141-200 ºC

Sulphur is the biggest adversary of diesel engines, as the higher the sulphur concentration, the more acidic the engine will become. Engine components, from scale to fuel lines, will be damaged as a result of this circumstance. Crust in the fuel lines can obstruct the flow of fuel into the cylinders, resulting in a direct impact on engine performance, ranging from lower power to more significant damage. Premature combustion, often known as knocking, occurs here, causing the engine to tickle [9].

Injector components can be damaged by high sulphur levels, resulting in poor combustion. The cleaner the exhaust gas emissions, fuel lines, diesel filters, and combustion chamber are, the lower the sulphur content. Sulphur also affects engine life. The higher the sulphur which is acidic, the more the engine will rust easily [14].

High sulphur levels in diesel fuel have consequences that go beyond vehicle harm. When combustion gases from an engine are mixed with air, sulphur dioxide (SO_2) is formed, and when SO_2 is coupled with water vapor, an acidic composition is formed, which is damaging to the body [26].

FAME is devoid of nitrogen and aromatic molecules, with a sulphur content of less than 155 ppm (parts per million) [9]. FAME also includes 11% oxygen by weight, which lowers energy content while also lowering exhaust gas emissions such as carbon monoxide (CO), hydrocarbons (HC), particulates, and soot. Biodiesel has a lower energy content than diesel, but its fuel efficiency is similar to petroleum diesel, which implies that the power and torque produced are proportionate to the calorific value content of the combustion.

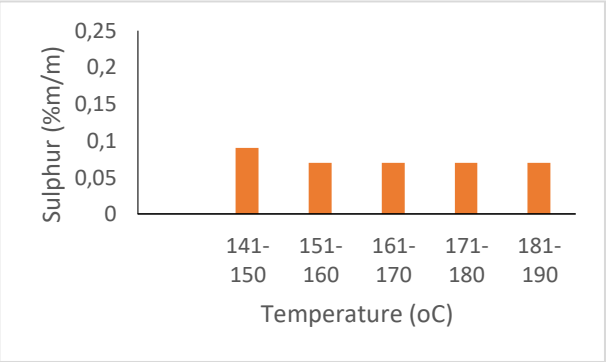

Figure 7. Sulphur content of biodiesel from FAME pyrolysis

Figure 7 shows that the composition of FAME raw materials with Fly Ash catalyst starts at a temperature of 151-160ºC with a sulphur value of 0.09% w/w, and 161-200ºC a sulphur value of 0.07% w/w. Everything is obtained from the analysis that the sulphur content of biodiesel is far below the maximum required limit.

4. CONLUSION

Biodiesel is an environmentally friendly diesel fuel, according to the pyrolysis results, because it creates lower exhaust pollutants, namely free sulphur. The sulphur content of 0.1 percent w/w is well below the quality standard limit's maximum value. According to the findings, the viscosity density value of the cetane number, flash point of water content, and sulphur value of biodiesel are still within the range of the Director General of Oil and Gas' quality criteria.

AUTHORS' CONTRIBUTIONS

All of the authors are involved in the process of designing the equipment and analysis biodiesel. The first and corresponding author contribution is

responsible for data processing and manuscript writing. The second author is responsible for equipment design and data processing. The third author is responsible for analysis biodiesel sample. The fourth author is responsible for funding arrangement.

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