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CONFERENCE PROGRAMS AND ABSTRACT

**INTERNATIONAL CONFERENCE
FORUM IN RESEARCH, SCIENCE, AND TECHNOLOGY 2020**

NOVEMBER 10-11, 2020

**Palembang, Province of South Sumatera
Indonesia**

Organized By :

Collaborate With :



FOREWORD FROM GENERAL CHAIR 4th FIRST 2020 INTERNATIONAL CONFERENCE



Assalamu'alaikum wr wb,

Thank to Allah SWT, the most gracious, the most merciful, and may prayers and peace be upon our prophet, Muhammad SAW and upon his companions

First of all, I also would like to say thank you very much for choosing FIRST 2020 and SNAPTEKMAS 2020. I also would like to convey my warm welcome to all FIRST 2020 and SNAPTEKMAS 2020 keynote speakers and all participant.

Thank to the God, although we are facing the corona pandemic, the researchers are still be able to produce good research and still have great spirit in finding new technique or methods in many areas. The purpose of the FIRST is basically to provide the researchers and academia to exchange, to discuss the results of their study so that it can meet the industrial needs and government regulations, and also to publish the research. Although, this year conference should be held virtually, however, it is hoped that the FIRST 2020 and SNAPTEKMAS 2020 are still able to facilitate researchers from all over the world to meet and to make opportunities to collaborate.

FIRST has been held for four times and organized by State Polytechnic of Sriwijaya. The previous beginning FIRST conference was a National Conference and it was held on October 27, 2015, with the theme: Peningkatan Kualitas SDM melalui Penelitian Teknologi Tepat Guna dalam Menghadapi Ekonomi Asean. On 2016, the FIRST was upgraded in order to enhance the quality of the conference. The first FIRST international conference was held in State Polytechnic of Sriwijaya, on October 18-19, 2016, while the second FIRST international conference was held on October 30-31, 2019 at Horison Ultima Hotel Palembang, and the 3rd FIRST was held on October 9-10, 2019, at Excelton Hotel Palembang, Indonesia.

This 4th FIRST 2020 International Conference has attracted 8 participants, i.e., from Malaysia, Brunei Darussalam, Japan, Taiwan, Thailand, United Kingdom, Hungary, and Cambodia. While SNAPTEKMAS has become the destination of 6 biggest university in Indonesia.

This year FIRST 2020 and SNAPTEKMAS 2020 conference is held on November 11, 2020, at Beston Hotel. This conference will present:

1. Prof. Chiaki Ogino, from Kobe University, an expert in biodiesel field
2. Dr. Wahyu Caesarendra, S.T., M. Eng., from Universiti Brunei Darussalam, an expert in mechanical engineering
3. Prof. Yuliansyah, M.S.A., Ph.D, Akt, CA, from Lampung University, an expert in Accounting
4. Dr. Dodi Reza Alex Noerdin, as Bupati Musi Banyuasin, expert in government policy for technology implementation
5. Assoc. Prof. Dr. Mohammed N Adurazaq, from Management and Science University (MSU), an expert in health technology, and
6. Dr. Muhammad Haikal Satria, IPM, from Jakarta Global University, an expert in health



Finally, I also want to say thank you very much for your participation, I hope that you can enjoy this FIRST 2020 and SNAPTEKMAS 2020.

Wassalamu'alaikum wr wb

FOREWORD FROM DIRECTOR OF STATE POLYTECHNIC OF SRIWIJAYA



Assalamu'alaikum wr wb,

In the name of Allah, the most gracious, the most merciful. First of all, I would like to convey my warm welcome to all of FIRST 2020 and SNAPTEKMAS 2020 keynote speakers and all participant of FIRST 2020 and SNAPTEKMAS 2020. It is my great pleasure to meet and see you in this event.

As we know, the corona pandemic has hit many sectors in the world. Not only the economic one but also the social, and education. As incredibly crucial to the growth and sustainability of innovation and learning within the academic community, some events, such as: academic conferences, seminars, and even lectures themselves, have also been the worst hit by this corona pandemic. A lot of important events has been adversely affected due to region-wide lockdowns.

Therefore, to accommodate the researchers from all over the world and to be consistent in maintaining the continuity and the development of science and technology, the FIRST 2020 and SNAPTEKMAS 2020 are still held in this year although in virtual way. The FIRST 2020 and SNAPTEKMAS 2020 become one of State Polytechnic of Sriwijaya annual event. It is hope that FIRST 2020 and SNAPTEKMAS 2020 become one of the conferences that support the advance of the science and technology.

As our attention on COVID-19 tragedy, in this year, we also make a cooperation with the ITKJ (institut Teknologi Kesehatan Jakarta) or now JGU (Jakarta Global University) that focuses on the health and health technology. Therefore, in this occasion, We also invite special issues research about COVID-19 to participate in FIRST 2020 and SNAPTEKMAS 2020 conferences.

Finally, I also want to say thank you very much for your participation, I hope that you can enjoy this conference and can follow all of the agenda until the closing of this conference.

Wassalamu'alaikum wr wb

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Lindawati, ST., M.Ti., Politeknik Negeri Sriwijaya, Indonesia

Yogi Eka Fernandes, S.Pd., M.T., Politeknik Negeri Sriwijaya, Indonesia

Ozkar Firdausi Homzah, S.T., M.T., Politeknik Negeri Sriwijaya, Indonesia

KEYNOTE SPEAKER



Prof. Dr. Chiaki Ogino

Chiaki OGINO is the Professor of Department of Chemical Science and Engineering, Graduate School of Engineering, Kobe University, Japan. He received his B.Sc., M.Sc., and Ph.D. in Chemical Engineering at Kobe University, Japan. He has supervised more than 50 over master course students, and 10 over doctor course students in Kobe University. He is the author or co-author of over 230 peer-reviewed journal papers and 40 reviews and book chapters. His research interests are wide and concern: production of biofuels and chemicals from biomass based on synthetic biotechnology by Yeast, Fungi and Actinomycetes, and development of novel drug and gene delivery systems based on nanobiotechnology.

KEYNOTE SPEAKER



Wahyu Caesarendra, PhD

Assistant Professor of General Engineering Faculty of Integrated Technologies, Universiti Brunei Darussalam, Jalan Tungku Link, Gadong BE1410, Brunei Darussalam. Research Interests: Machine Learning, Product Design, Mechatronics, and Smart Manufacturing Ph.D. Mechanical Engineering, University of Wollongong, Australia (2015) M.Eng. (Hons.). Mechanical Design Engineering, Pukyong National University, South Korea (2010) B.Eng. (Hons.) Mechanical Engineering, Diponegoro University, Indonesia (2005). EMPLOYMENT HISTORY: Assistant Professor Faculty of Integrated Technologies, Universiti Brunei Darussalam (08/10/2018 - date). Assistant Professor Department of Mechanical Engineering, Diponegoro University (Jul 2017 – Des 2019). Visiting Asst. Prof. National Taiwan University of Science and Technology (August 2019). Lecturer Department of Mechanical Engineering, Diponegoro University (Dec 2010 – Jun 2017). Postdoctoral Research Fellow School of Mechanical and Aerospace Engineering, Nanyang Technological University (02/02/2017 - 19/09/2018).

KEYNOTE SPEAKER



Prof. Yuliansyah, M.S.A., Ph.D, Akt, CA

Bachelor at Jenderal Soedirman University – Indonesia 1998, Magister Program M.S.A. Meinders School of Business, Oklahoma City, University, United State of America 2006, Doctoral Program Ph.D Division of Business, University of South Australia, Australia 2012. Founder and Chairman of The Ujang Syahrir Foundation and Founder and Chairman of Goodwood Publishing (goodwoodpub.com). Board Committee of Asia Pacific of Management Accounting Association, International Consultant for Qualitative Study (Nvivo Program), The Quality Assurance Team for the Forensic Auditor Professional Certification Institute, Member of Asian Academy of Management, British Accounting and Finance Association Member.

KEYNOTE SPEAKER



Dr. H. Dodi Reza Alex Lic, Econ, MBA

Doctor of Public Administration Program, Faculty of Social & Political Sciences, Padjadjaran University, Bandung, West Java. Fellowship on IDEAS 2.0, Massachusetts Institute of Technology (MIT) Sloan School of Management, Cambridge MA, USA. Master of Business Administration (MBA), Solvay Business School, Université Libre de Bruxelles, Brussels, Belgium. Graduated with the title of Magna Cum Laude. Licencié en Sciences Economiques (Bachelor of Economics), University of Leuven (UCL), Louvain-la-Neuve, Belgium. Graduated with the title 'Grande Distinction (High Honor). Top 2%, A thesis written in French, received the BBL Prize Award. Primary and Secondary Education in Indonesia and Canada. 2017-2022 as Regent of Musi Banyuasin Period, 2014-2016 as Deputy Chairperson of Commission VI DPR RI and Deputy Chairperson of the Golkar Party Faction DPR RI. 2013-2015 as PT. Liga Indonesia Commissioner, Jakarta, Indonesia. In 2009-2014 as Member of the DPR / MPR-RI for the period of 2009-2014.

KEYNOTE SPEAKER



Dr. Muhammad Haikal Satria, IPM

Expertise : Software Engineering, Medical Informatics, Communication Protocol in Healthcare, Software as Medical Devices, QoS Provision in Data Communication. Universiti Teknologi Malaysia Johor, Malaysia Phd (on Electronics engineering) 2007 – 2014. Dissertation : Integration of Multimetric Path Management Into 802.11s For Telemedicine Quality Of Service Provision Universitaet Duisburg Essen Duisburg, Germany MSc (Master of Science) 2006. Thesis : Implementation of a secure RMI connection in a web service monitoring application. University of Indonesia Depok, Indonesia MT (Master of Engineering) 2006 University of Indonesia Depok, Indonesia ST (Bachelor in Engineering) 2003, Thesis : Downlink connectivity on MC-DS-CDMA in Rayleigh dan Rician fading channel.

KEYNOTE SPEAKER



Assoc. Prof. Dr. Mohammed N. Abdulrazaq Alshekhly

Field of specialisation : Semi-solid Metal Processing, Advanced Materials Joining, Internet of things (IoT), Robotics. Fields of interest : Metal Processing , Metallurgy Friction welding, Metal Matrix Composites, Materials Failure Analysis, Surface engineering/ Wear of materials, Biomedical sciences. Doctor of Philosophy (Ph.D) In Mechanical and Materials Engineering. Department of Mechanical and Materials Engineering, National University Of Malaysia (UKM) (2011–2015). Master In Mechanical Engineering, Department of Mechanical and Materials Engineering, National University Of Malaysia (UKM) (2009 – 2010). B.Sc. In Mechanical/Production Engineering. Department of production & Metallurgy Engineering, University of Technology–Baghdad (2002 – 2006).

RUNDOWN
The 4th FIRST 2020 INTERNATIONAL CONFERENCE
(FORUM IN RESEARCH SCIENCE AND TECHNOLOGY)
SNAPTEKMAS (Seminar Nasional Aplikasi Teknologi pada Masyarakat) 2020

Palembang, South Sumatera, Indonesia

Wednesday, November 11, 2020					
No.	Session	Person in Charge	Time Allotment (WIB)	Liaison Officer	
1.	Registration	Event Section Committee	07.00 – 08.00	M.Miftakhul Amin, S.Kom., M.Eng	
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.	Prof. Chiaki Ogino	Kobe University, Japan	09.00 – 09.30	Dr. Martha Aznury, S.Pd., M.Si.	Dr. Nyayu Latifah Husni, M.T.
2.	Dr. Dody Reza Alex Noerdin	Pemkab, Sekayu, Indonesia	09.30 – 10.00		
3.	Wahyu Caesarendra, S.T., M.Eng., Ph.D.	University of Brunei Darussalam, Brunei	10.00 – 10.30	Dr. Nyayu Latifah Husni, M.T.	Doeslohal Djumrianti, S.E.MIS., Ph.D
4.	Prof. Yuliansyah, M.S.A., Ph.D., Ak., CA.	University of Lampung, Indonesia	10.30 – 11.00		
5.	Dr. Muhammad Haikal Satria, IPM.	Jakarta Global University, Indonesia	11.00 – 11.30	Dra.Tiur Simanjuntak M.Pd.	Dr. Ade Silvia Handayani, M.T.
6.	Assoc. Prof. Dr. Mohammed N Adurazaq	Management and Science University (MSU), Malaysia	11.30 – 12.00		

PARALEL SESSION					
No.	Theme	Room	Time	Moderator	Articles
1.	TRACK 1 (Engineering and Science)	1	13.00 – 16.30	Jaksen M. Amin, M.Si./ Indah Purnamasari, M.Eng.	22
2.	TRACK 1 (Engineering and Science)	2	13.00 – 16.30	Dr. Eng. Tresna Dewi, M.Eng/ Ozkar F.H., M.Eng	22
3.	TRACK 1 (Engineering and Science)	3	13.00 – 16.30	Dr. Martha Aznury, M.Si./ Dr. Indrayani, ST, MT/	22
5.	TRACK 2 (Computer Science, , Computer Engineering, Information System, Informatics Management)	5	13.00 – 16.30	M.Miftakhul Amin, M.Eng /Aryanti, M.Kom.	21
6.	TRACK 2 (Computer Science, , Computer Engineering, Information System, Informatics Management)	6	13.00 – 16.30	Dr. Nyayu Latifah H./ Rika Sadariawati, M.Si.	21
7.	TRACK 3 (Social Science)	7	13.00 – 16.30	Doeslohal Djumrianti, S.E.MIS., Ph.D/ Dr. Marieska Lupikawati	16
8	TRACK 3 (Social Science)	8	13.00 – 16.30	Dr. Sari Lestari ZR/ Dr. Rita Martini	16
9	SNAPTEKMAS 1	9	13.00 – 16.30	Yurni Oktarina, ST, MT/ Yogi F, MT	20
10	SNAPTEKMAS 2	10	13.00 – 16.30	Leni Novianti, M.Kom./ Maivi Kusnandar, M.Kom	20
11	SNAPTEKMAS 3	11	13.00 – 16.30	M Husni Mubarak, M.Si./ Alan Novi, Tumpunu, MT	20
12	SNAPTEKMAS 4	12	13.00 – 16.30	Dr. Ade Silvia H/ Edwin F, M.Ac.	14
CLOSSING SESSION					

Event	Time	Room
<ul style="list-style-type: none"> - Closing Ceremony - Announcement of: <ol style="list-style-type: none"> 1. Best Paper FIRST IC 2020 2. Best Paper SNAPTEKMAS 2020 3. Best Presenter FIRST IC 2020 4. Best Presenter SNAPTEKMAS 2020 - Quiz Online 	16.30– 17.00	Main Room

RUNDOWN

TRACK 1

(Engineering and Science)

ROOM : 1
 TIME : Wednesday, 11 November, 2020/ 13.00 - 16.30
 ARTICLES : 22
 MODERATOR : Jaksen M. Amin, M.Si./ Indah Purnamasri, M.Eng

NO	Time	ID	AUTHORS	TITLE	AFFILIATION
1	13.00-13.10	2079	Yusabri, Muhammad Yerizam, Aida Syarif	Characterization Of Blending Composition Variations In Fatty Acid Methyl Ester (Fame) Biofuels With Diesel To Biodiesel	Politeknik Negeri Sriwijaya, Pt. Pertamina (Persero) Refinery Unit Iii
2	13.10-13.20	2082	Pamilia Coniwanti, Fitri Hadiah, David Bahrin, Liza Novriani, Gracia Mei Lie Justina, Robinsyah	Processing Plastic Waste Hdpe And Pp On Pyrolysis Temperature Using Cu- Al ₂ O ₃ Catalyst Into An Alternative Liquid Fuel	Sriwijaya of University
3	13.20-13.30	2749	Yohandri Bow , Leila Kalsum, Abu Hasan, A.husaini	The Purification of Biogas with Monoethanolamine (MEA) Solution Based on Biogas Flow Rate	Politeknik Negeri Sriwijaya
4	13.30-13.40	2758	Rusdianasari, Yohandri Bow, Adi Syakdani, Muhammad Taufik	Filtration and Electrocoagulation as a Combined Process for Electroplating Wastewater	Politeknik Negeri Sriwijaya
5	13.40-13.50	2415	Novarini, Sigit Kurniawan, Rusdianasari, Yohandri Bow	Study Of Temperature And Use Of Catalysts In The Pyrolysis Of Ldpe Plastic Waste On The Quantity Of Oil Fuel Products Produced	Politeknik Jambi, Politeknik Negeri Sriwijaya
6	13.50-14.00	2077	Rika Musiana, Abu Hasan, Rd Kusumanto	Titanium Dioxide Soaking Time Effects On Dssc Powers And Efficiency	Politeknik Negeri Sriwijaya
7	14.00-14.10	2086	Juarsa, Aida Syarif, Leila Kalsum	Effect Of Feed Composition And Product Quantity Of Co- Processing Refined	Politeknik Negeri Sriwijaya, Pertamina

				Bleached Deodorized Palm Oil (Rbdpo)	Refinery Unit Iii Plaju, Palembang
8	14.10-14.20	2748	Ibnu Hajar , Fadarina, Mustain,	Hajar Tofu Industrial Liquid Waste Treatment by Electrocoagulation Method	Politeknik Negeri Sriwijaya
9	14.20-14.30	2626	KA Ridwan, Anerasari M, Taufik Jauhari, Ida Febriana	Effect Of Temperature On Biofuels Production With Catalytic Cracking Process	State Polytechnic of Sriwijaya
10	14.30-14.40	2573	Lety Trisnaliani1a, Aida Syarif, Sahrul Effendy, Tahdid, Rima Daniar	Effect Of Bentonite On The Yield And Composition Of Products From Thermolysis Of Polystyrene Waste	Politeknik Negeri Sriwijaya
11	14.40-14.50	2665	Muhammad Yerizam, Muhammad Zaman , Taufiq Jauhari, Nur Yuli, Riwen Setiawan, Umaidella Afrilla	PRODUCTION OF BIO-PELET BRIQUETTES FROM COCONUT SHELL WASTE AS ALTERNATIVE ENERGY FOR HOUSEHOLD SCALE	Politeknik Negeri Sriwijaya
12	14.50-15.00	2707	Zurohaina1, Irawan Rusnadi, Fatria, Arizal Aswan, Rima Daniar	Catalytic Pyrolysis Of Styrofoam Waste Using Zeolite Catalyst To Produce Liquid Fuel	Polytechnic Of Sriwijaya
13	15.00-15.10	2715	Ahmad Zikri, Indah Puspita, Erlinawati, Sutini PL, Agus M Elbi Zalita P, Andre Krismantoro	Production Of Green Diesel From Crude Palm Oil (CPO) Through Hydrotreating Process By Using Zeolite Catalyst	State Polytechnic of Sriwijaya
14	15.10-15.20	2723	Muhammad Hanif Fatin, A. Husaini, Leila Kalsum	Effect Of Adding Palm Oil Mill Effluent (POME) And Slurry On Biogas From Cow Manure To Produced Methane Gas	Politeknik Negeri Sriwijaya
15	15.20-15.30	2796	Aida Syarif, Rusdianasari, M. Yerizam, Sahirman Yusi	CHARACTERIZATION OF THERMAL ACTIVATED FLY ASH ADSORBENT BY STUDYING THE EFFECT OF TEMPERATURE	Politeknik Negeri Sriwijaya

16	15.30-15.40	2516	A Hasan, I Purnamasari, M Yerizam, A Hasan, R Junaidi	Drying Rate Of Skim Milk From Virgin Coconut Oil Remaining Water	Sriwijaya State Polytechnic
17	15.40-15.50	2656	Ibnu Hajar, Fadarina, Mustain Zamhari, Selastia Yuliati	Tofu Industrial Wastewater Treatment by Electrocoagulation Method	Politeknik Negeri Sriwijaya
18	15.50-16.00	2792	Elina Margaretty, Erwana Dewi, Leila Kalsum, Aisyah Suci Ningsih	BIOCELLULOSE MEMBRANE OF COCONUT WATER	Politeknik Negeri Sriwijaya
19	16.00-16.10	2794	Jaksen M. Amin, Idha Silviyati, Endang Suraptiah, Rima Dania	Surfactant Methyl Ester Sulfonate From Crude Palm Oil (CPO)- based Methyl Ester	Politeknik Negeri Sriwijaya
20	16.10-16.20	2250	Husaini A, Zaman M, Chodijah S, Hilwatullisan, Ibrahim	Oil Palm Empty Bunches As An Alternative Raw Material For Making Bioplastics	Politeknik Negeri Sriwijaya
21	16.20-16.30	2511	Azharuddin, Syafei, Didi Suryana, Indra Hb, M R Rahmaddy Y Pratomo, M A Ariasya	The Effect Of The Catalyst (Naoh) On The Processing Of Waste Used Oil Into Liquid Fuel	State Polytechnic Of Sriwijaya
22	16.30-16.40	2766	Ella Sundari, Soengeng Witjahjo, Eka Satria Martomi, Dodi Tafrant	DESIGN AND PROTOTYPE OF PAVING BLOCK MAKING MACHINE	Politeknik Negeri Sriwijaya

RUNDOWN

TRACK 1

(Engineering and Science)

ROOM : 2
 TIME : Wednesday, 11 November, 2020/ 13.00 - 16.30
 ARTICLES : 22
 MODERATOR : Dr. Eng. Tresna Dewi, M.Eng/ Ozkar F.H., M.Eng

NO	Time	ID	AUTHORS	TITLE	AFFILIATION
1	13.00-13.10	2094	Sujito, Mokh. Sholihul Hadi, I Made Wirawan, Faiz Syaikhoni, Abdullah Iskandar Syah, Danny Mayrawan	Water Quality Monitoring System In Gurame Fish Cultivation Based On Esp32	Universitas Negeri Malang
2	13.10-13.20	2426	Fatahul Arifin, Fenoria Putri, Iskandar, Mulyadi, Suparjo, Franando, Yusuf Dewantoro Herlambang	Optimization Of Stroke Rehabilitation Hand Component Of 3d Printing With Taguchi Method Approach	Politeknik Negeri Sriwijaya, Politeknik Negeri Semarang
3	13.20-13.30	2457	Ismail T, Dyos S, Joni Y, Samuel S, Abdurahman W, Aldi Y	Experimental Research Of The Influence Of Hot Machining Method On Aisi 4340 Lathe Machine Process Towards Specific Cutting Energy And Surface Roughness	Sriwijaya University
4	13.30-13.40	2487	Sujito, M.Z. Falah, M. R. Faiz	Study Of Capacitor Placement To Improve The Voltage Profile In Contingency Conditions Of The 150 Kv Madura Electricity Power System	Universitas Negeri Malang
5	13.40-13.50	2488	Tresna Dewi, Ahmad Taqwa, Rusdianasari, Rd Kusumanto, And Carlos Sitompul	The Investigation Of Sea Salt Soiling On Pv Panel	Politeknik Negeri Sriwijaya
6	13.50-14.00	2490	Yurni Oktarina, Tresna Dewi, Pola Risma, And	Real-Time Wireless Concept Of Vehicle To Vehicle Charging System	Politeknik Negeri Sriwijaya

			Muhammad Nawawi		
7	14.00-14.10	2522	Zainal Abidin , M. Yanis, M. Zahri Kadir, Astuti , Akbar Teguh Prakoso, Edo Syahrizal, Ardiyansyah Syahrom, Hasan Basri	Optimization Of Fdm 3d Printing Process Parameter For Improving Porosity Accuracy Of Pla Scaffold	Universitas Sriwijaya, Universiti Teknologi Malaysia,
8	14.10-14.20	2527	Risky Utama Putra, Akbar Teguh Prakoso, Amir Putra Md Saad, Ardiyansyah Syahrom, Hasan Basri	Fatigue Prediction Of Porous Magnesium Bone Scaffold Using Finite Element Method	Universitas Sriwijaya, Universiti Teknologi Malaysia
9	14.20-14.30	2763	Bambang Guntoro, Zainuddin, M. Yunus, Siswandi	THE GROUNDING SYSTEM IN FEEDER TOMAT PT. PLN (PERSERO) ULP MARIANA	Politeknik Negeri Sriwijaya
10	14.30-14.40	2510	Dp Putra, Romli, D Seprianto, Hasan Basri	Optimization Of Production Process Parameters Of Dlp Type 3d Printer Design For Product Roughness Value	Universitas Sriwijaya
11	14.40-14.50	2592	Ali Nurdin, Jon Endri, Ibnu Ziad, Ciksadan	Design Of Electronic Instruments As Tools Air Pollution Detection	Politeknik Negeri Sriwijaya
12	14.50-15.00	2249	W Adipradana, A Sofijan, Rahmawati, I Bizzy, R Sipahutar, M A Fajri	Datalogger Experimental Analysis Based On Arduino Mega 2560 On A 100 Wp Monocrystalline Solar Panel Using Perforated Plate	Sriwijaya University
13	15.00-15.10	2722	Romli, M. Afif Rizkiawan, Karmin, Sairul Effendi, Firdaus	The Effect Of Induction Heating On Tensile Test Specimens' Clamping Products Through The Medium Carbon Steel Materials' Engineering Technique	State Polytechnic Of Sriwijaya

14	15.10-15.20	2484	D Mayrawan, Sujito, I M Wirawan, F S Aziz, A I Syah, Ma Ashidiqi	Development Internet Of Things For Water Quality Monitoring System For Gouramy Cultivation	Universitas Negeri Malang
15	15.20-15.30	2485	M Z Falah, Sujito, I Mwirawan	Contingency Analysis On 150 Kv Electricity Power System On The Madura Island Based On The 1p1q Method	Universitas Negeri Malang
16	15.30-15.40	2797	Ozkar F. Homzah,* Tri Widagdo, Mardiana, Ibnu Asrofi, Destra A Pratama	Prototype of Small Savonius Wind Turbine	Politeknik Negeri Sriwijaya
17	15.40-15.50	2780	Yahya, Muhammad Rasid, Dicky Seprianto, Yahya	The Formation of Machine Components Using Powder Metallurgy Method Utilizing Metal Powder from Grinding Process	Politeknik Negeri Sriwijaya
18	15.50-16.00	2736	Noer Fadzri Perdana Dinata, Hasan Basri	Simulation-Based Analysis On Vacuum Actuated Soft Robotic Gripper: Trajectory And Stress Intensity Factor	Universitas Sriwijaya
19	16.00-16.10	2731	Lulu Khoirunnisa, Hasan Basri	Failure Analysis And Performance Assessment Of Tubular Air Heater At PLTU South Sumatra V	Universitas Sriwijaya
20	16.10-16.20	2787	Almadora Anwar Sani, Rachmat Dwi S, Irawan Malik, Ali Medi, Agus Nugraha	Automatic simulation of moving products using Line Follower and Conveyor	Politeknik Negeri Sriwijaya
21	16.20-16.30	2751	Mirdiansyah, Ahmad Taqwa, Yohandri Bow	Monitoring Depth of Discharge of a Valve Regulated Lead Acid Battery in a Standalone PV System	Politeknik Negeri Sriwijaya
22	16.30-16.40	2650	A Zamheri, D Seprianto, Carlos RS Indri A, TC Persada ⁵	The Effect of Parameter Process 3D Printer Technology Digital Light Processing to Geometric of Shaft	Politeknik Negeri Sriwijaya

RUNDOWN

TRACK 1

(Engineering and Science)

ROOM : 3
 TIME : Wednesday, 11 November, 2020/ 13.00 - 16.30
 ARTICLES : 22
 MODERATOR : Dr. Martha Aznury, M.Si./ Dr. Indrayani, ST, MT

NO	Time	ID	AUTHORS	TITLE	AFFILIATION
1	13.00-13.10	2073	Fadhila Firdausa, Sri Rezki Artini, Ahmad Syapawi, Puryanto	Bending Test Galvalum Cold Formed Steel Beam With Variation Mortar And Reinforcement Bars	Polytechnic Of Sriwijaya
2	13.10-13.20	2089	Pataras M, Kadarsa E, Permata D Y, Khairunnisa S, Akbar M A, Pratama Y	Index Of Retained Strength And Weight Loss On Flexible Pavement Ac-Wc And Hrs-Wc Using Polymer Products Ethylene Vinyl Acetate (Eva) And Styrene-Butadiene-Styrene (Sbs)	Sriwijaya University
3	13.20-13.30	2101	Adhitya B B, Pataras M, Kurnia A Y, Wiranda N, Wulansari W, Islami B M	Utilization Of Residual Sand Materials From The Mining Of Kaolin And Tin In Bangka Island On Flexible Pavement Structure	Sriwijaya University
4	13.30-13.40	2218	Ika Sulianti, Ibrahim, Indah Ayu Wiloka, Reta Iftitah Sari	The Influence Of Anadara Granosa's Shell Waste As A Substitute Of Fine Aggregate In Mixed Asphalt Concrete Wearing Course (Ac-Wc)	State Polytechnic Of Sriwijaya
5	13.40-13.50	2236	S Nisumanti, N Puspita, S Mulyaningsih,	Analysis Of The Impact Of Palembang - Indralaya (Palindra) Toll Road To Palembang – Indralaya National Road Service Levels	Universitas Indo Global Mandiri

6	13.50-14.00	2402	Sazili Harnawansyah, Herlinawati, Bastoni Hasasi, Radius Pranoto	The Effect Of Fly Ash As A Part Cement Institution On High-Quality Concrete Fc'35	Sriwijaya State Polytechnic
7	14.00-14.10	2553	Mahmuda, Revias, Siswa Indra, Sumiati	The Use Of Cold-Formed Steel As A Substitute For Reinforcement On Structural Of Lightweight Concrete Beams	State Polytechnic Sriwijaya
8	14.10-14.20	2724	Ibrahim, Amiruddin, And Ika Sulianti, And Agus Subrianto	The Effect Of Air Pressure On Foamed Mortar Production	State Polytechnic Of Sriwijaya
9	14.20-14.30	2767	Efrilia Rahmadona, , Sudarmadji, Norca Praditya, M. Ade Surya Pratama,	The Characteristics of Folding Bicycle Users Against The Selection of Transportation Modes in Palembang City	Politeknik Negeri Sriwijaya
10	14.30-14.40	2081	Rosdiana, Moeksin	Effect Of Amount Potassium Hydroxide, Methanol, And Electricity Current On The Production Process Of Methyl Esters From Used Frying Oil	Sriwijayaof University
11	14.40-14.50	2611	Moch.Absor, Yusri, A.Latif, A. Fuad Z.Muhammad Yusri R.	Optimization Of Public Trasport Service Bus Rapid Transit (Brt) Trans Musi In The City Of Palembang	Politeknik Negeri Sriwijaya
12	14.50-15.00	2109	Yonki Alexander Volta, Rusdianasari, Syahirman Yusi	Life Cycle Assessment (Lca) In Pulp & Paper Mills: Comparison Between Mfo With Biomass In Lime Kiln	Politeknik Negeri Sriwijaya
13	15.00-15.10	2120	Farida Ali, Lia Cundari, Siti Miskah, Hendri Prasetyo	Effect Of Variations Concentration And Ph Of Liquid Smoke In The Immersion With Various Types Of Fish	Universitas Sriwijaya
14	15.10-15.20	2154	Indrayani , Andi Herius, Akhmad Mirza, Ricky Ravsyhan Alhafez	Comparison Of The Use Of Fly Ash And Rice Husk Ash In The Making Of Geopolymer Concrete	Politeknik Negeri Sriwijaya

15	15.20-15.30	2235	Norma Puspita	Flexural Strength Analysis Of Concrete With The Addition Of B3 Waste As An Additive To Ordinary Portland Cement (Opc)	Universitas Indo Global Mandiri
16	15.30-15.40	2811	Agung Budi Santoso, Martha Aznuri, Nova Rachmadona, Robert Junaidi, Fertarina Pratiwi	Simulation of Silage Production from Water Hyacinth (Eichornia crassipes) as Ruminants Feed Based on The Increase of <i>Aspergillus niger</i>	<i>University, Bangkok, Thailand, Politeknik Negeri Sriwijaya, Kobe University, Japan</i>
17	15.40-15.50	2645	Sumiati, Mahmuda, Ahmad Syapawi	The placement position of hollow cores in the ideal longitudinal direction on the reinforced concrete beam	State Polytechnic Sriwijaya
18	15.50-16.00	2741	Nova Rachmadona, Martha Aznury, Chiaki Ogino	Production of Biodiesel from Unrefined Plants-Derived Oil by Immobilized <i>Aspergillus oryzae</i> Expressing <i>Bacillus thermocatenulatus</i> Lipase	Kobe University, Japan
19	16.00-16.10	2571	Darma Prabudi, Kosim, Zainuddin, Raja Marpaung	Partial Substitution Of Cement Using Fly Ash And Carbite Waste In The Making Of Normal Concrete	Sriwijaya State Polytechnic
20	16.10-16.20	2660	Hendi Warlika Sedo Putra, Maya Fitri Oktarini, Primadella	Community Adaptation to Traditional Markets during the Pandemic Period in Palembang City	Politeknik Negeri Sriwijaya
21	16.20-16.30	2809	Martha Aznury, Elina Margerty, Melianti Sofiah, Yuniar, Sufi Awwaliyah	EFFECT OF FERMENTATION TIME AND PERCENTAGE OF MORINGA (<i>Moringa oleifera</i>) FLOUR VARIATIONS ON VITAMIN C OF YOGURT	Politeknik Negeri Sriwijaya
22	16.30-16.40	2744	R.Marpen, A. Hasan, AN.Sari,HWS.Putra, R. Pranoto	Road Damage Conditions Analysis Of Tanjung Api-Api - Gasing District Road Based On Surface	Politeknik Negeri Sriwijaya

				Distress Index (Sdi) Method	
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RUNDOWN TRACK 2 (Computer Science, , Computer Engineering, Information System, Informatics Management)

ROOM : 5
 TIME : Wednesday, 11 November, 2020/ 13.00 - 16.30
 ARTICLES : 21
 MODERATOR : M.Miftakhul Amin, M.Eng /Aryanti, M.Kom.

NO	Time	ID	AUTHORS	TITLE	AFFILIATION
1	13.00-13.10	2550	Muhammad Aris Ganiardi, Indri Ariyanti, Nita Novita, Delta Khairunissa	DATA MODEL PATTERN FOR DATA WAREHOUSE WEB APPLICATION OF INFORMATION PORTAL (Case study : Hidyatullah Integrated Islamic Boarding School, Banyuasin Regency)	Politeknik Negeri Sriwijaya
2	13.10-13.20	2577	Dedy Kurniawan, Ahmad Rifai, Ariansyah Saputra	Inventory control and EOQ forecasting tools as effective decision-making model	Universitas Sriwijaya, Politeknik Negeri Sriwijaya
3	13.20-13.30	2096	Sujito Sujito, Faiz Syaikhoni Aziz, Aji Prasetya Wibawa, I Made Wirawan, Ari Priharta, Abdullah Iskandar Syah, Tran Huu Duy	Increasing Sensitivity of pH Detection Using Computer Vision Based Biosensors	Universitas Negeri Malang Dalat University
4	13.30-13.40	2603	Ica Admirani, Ikhthison Mekongga, Isnaini Azro, Hidayati Ami, Rian Rahmanda Putra	Adaptive Fuzzy time Series Method to Forecasting Enrollments of New Student (Case Study : Department of Computer Engineering, State Polytechnic of Sriwijaya)	Politeknik Negeri Sriwijaya
5	13.40-13.50	2613	Azwardi, Yulian Mirza, Alan Novi Tompunu, Ariansyah Saputra	ROOM SAFETY SYSTEM USING FACE RECOGNITION USING TELEGRAM	Politeknik Negeri Sriwijaya

				AND RASPBERRY PI BASED HISTOGRAM OF ORIENTED METHOD	
6	13.50-14.00	2618	Ahyar Supani, Ahmad Bahri Joni Malyan, Herlambang Saputra, Indarto, Yuli Andriani	Telemetry Design Accuration of Patient's Temperature with IoT Approach	Politeknik Negeri Sriwijaya, Universitas Sriwijaya
7	14.00-14.10	2097	Faiz Syaikhoni Aziz, Sujito Sujito, Aji Prasetya Wibawa, I Made Wirawan, Ari Priharto, Abdullah Iskandar Syah, Tran Huu Duy	Image Processing System for pH Classification Using Biosensors	Universitas Negeri Malang Dalat University
8	14.10-14.20	2274	Irma Salamah, Lindawati, Asriyadi, M.Fadhli	Quality Measurement Evaluation of the POLSRI Learning Management System Website Using Importance Performance Analysis (IPA) Method	Politeknik Negeri Sriwijaya
9	14.20-14.30	2620	M. Miftakul Amin, Slamet Widodo, Adi Sutrisman, Ervi Cofriyanti, Ali Firdaus	RESTful Web Service as Data Generator for Reporting of Academic Information System	Politeknik Negeri Sriwijaya
10	14.30-14.40	2666	Abdul Rakhman, Irawan Hadi, Nasron, Martinus Mujur Rose	Design and Implementation of Learning E-Scheduling in Sriwijaya State Polytechnic - Telecommunication Engineering Study Program	Politeknik Negeri Sriwijaya
11	14.40-14.50	2702	Yusniarti, Henny Madora, Ida Wahyuningrum, Muhammad Noval	PHP PROGRAMMING FOR ACHIEVING STUDENTS IN INFORMATICS MANAGEMENT DEPARTMENT STATE OF POLYTECHNIC SRIWIJA	Politeknik Negeri Sriwijaya

12	14.50-15.00	2704	Robinson, Deri Darfin, Zulkarnaini, Ridwan Effendi,	MEDICAL SERVICES APPLICATION OF LECTURERS, STAFF AND STUDENTS IN THE SRIWIJAYA STATE POLYTECHNIC POLYCLINIC	Politeknik Negeri Sriwijaya
13	15.00-15.10	2768	Rahman Hakim, Muhammad Hasan Albana, Widodo, Hanifah Widiastuti and Wahyu Caesarendra	Prototype development of motorbike towing hook toward authorized mechanic perception and investigation	Politeknik Negeri Batam, Universiti Brunei Darussalam
14	15.10-15.20	2770	Mochamad Denny Surindra, Wahyu Caesarendra	Investigation Study of Pressure Different Effect at Evaporator in Organic Rankine Cycle Simulator (ORCS) Using Low-grade Waste Heat	Politeknik Negeri Semarang, Universiti Brunei Darussalam
15	15.20-15.30	2644	Indra Satriadi, Sony Oktapriandy, Hetty Meileni, Desy Aprianty..	Application of Tracking Letter Disposition at State Polytechnic of Sriwijaya based on Android Webview	Politeknik Negeri Sriwijaya,
16	15.30-15.40	1994	Ikhthison Mekongga, Aryanti Aryanti	The Shortest Path Search Application For Base Transceiver Station (Bts) Using A* Algorithm	Politeknik Negeri Sriwijaya, Southern Taiwan University Of Science And Technology, Tainan, Taiwan
17	15.40-15.50	2615	Aryanti Aryanti , Ade Silvia Handayani, Ibnu Ziad, Ikhthison Mekongga, Farid Jatri Abiyyu	Compatibility Of Linux Architecture For Diskless Technology System	Southern Taiwan University Of Science And Technology, Tainan, Taiwan, Politeknik Negeri Sriwijaya
18	15.50-16.00	2636	M. Zakuan Agung, Eka Susanti , R.A Halimatussa'diyah, Susanzefi, Amirah Fakhirah	Reservoir Irrigation System Design Based Wireless Sensor Network	Politeknik Negeri Sriwijaya

19	16.00-16.10	2817	Sarjana, Adewasti, Sholihin, Emilia Hesti	Using Night Vision Camera Robot Based On Internet Of Thing	Politeknik Negeri Sriwijaya
20	16.10-16.20	2726	Yudi Wijanarko, Selamet Muslimin, Renny Maulidda	Biometric Fingerprint Implementation For Presence Checking And Room Access Control System	Politeknik Negeri Sriwijaya
21	16.20-16.30	2663	Ahmad Taqwa, Mohammad Fadhli, Sopian Soim, Ade Silvia Suroso	Prototype Design of Landslide Early Detection System Using LoRa and IoT	Politeknik Negeri Sriwijaya

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

ROOM : 6
 TIME : Wednesday, 11 November, 2020/ 13.00 - 16.30
 ARTICLES : 21
 MODERATOR : Dr.Nyayu Latifah H, MT/Rika Sadariawati, M.Si.

NO	Time	ID	AUTHORS	TITLE	AFFILIATION
1	13.00-13.10	2078	M. Rudi Sanjaya, Yadi Utama, Dedy Kurniawan, Ariansyah Saputra, Novita Sari, Rahma Destriani, Muhammad Raihan Udda Rahmany	Implementation of Ustadz Search Software for Mubaligh, Qori and Qoriah Categories in Palembang Using an Android-Based Usability Approach	Universitas Sriwijaya, Politeknik Negeri Sriwijaya,
2	13.10-13.20	2619	Leni Novianti, Devi Sartika, Dewi Irmawati, Ienda Meiriska	Application of Campus Parking Area for State Polytechnic of Sriwijaya Based on Smartphone	Politeknik Negeri Sriwijaya
3	13.20-13.30	2669	Devi Sartika, Leni Novianti, Dewi Irmawati, Ienda Meiriska	ANDROID-BASE m- VOTING APPLICATION DEVELOPMENT WITH SIMPLE ADDITIVE WEIGHTING METHOD	Politeknik Negeri Sriwijaya
4	13.30-13.40	2098	M. Rudi Sanjaya, Ariansyah Saputra, Bayu Wijaya Putra, Novita Sari, Rahma Destriani, Muhammad Raihan Udda Rahmany	Design Web Based Online Tutoring Application in Palembang City Using the SUS (System Usability Scale) Method	Universitas Sriwijaya, Politeknik Negeri Sriwijaya,
5	13.40-13.50	2225	Yayuk Ike Melani and Mahmud	Black Box Testing Using Equivalence Partition Method in Sintana Application	STMIK PalComTech, Palembang
6	13.50-14.00	2366	Eko Setiawan and Wiza Yunifa	The Design of A Tool To Measure The Effectiveness and Efficiency of Users	Politeknik PalComTech Palembang

				Towards The Application of Polisiku Application	
7	14.00-14.10	2432	Hendra Hadiwijaya, Febrianty Febrianty, Rezania Agramanisti Azdy	Database Design for Child Special Development Institution's Service Performance E-dashboard (Case Study: Palembang Child Special Development Institution)	Politeknik PalComTech, STMIK Palcomtech
8	14.10-14.20	2440	Dedy Kurniawan, Ariansyah Saputra, M. Rudi Sanjaya, Zaqqi Yamani	Extending The Understanding of Business Intelligence and Its Application In Startups	Universitas Sriwijaya, Politeknik Negeri Sriwijaya,
9	14.20-14.30	2472	Hetty Meileni	THE APPLICATION OF DIGITAL MARKETING FOR UKM IN FACING THE COVID-19 PANDEMIC	Politeknik Negeri Sriwijaya
10	14.30-14.40	2586	Hartati Deviana	Designing Student And Lecturer Attendance System Application Using Progressive Web Apps (PWA)	Politeknik Negeri Sriwijaya
11	14.40-14.50	2760	Donny Novaliendry	Designing augmented reality-based computer devices learning media on android platform	Universitas Negeri Padang
12	14.50-15.00	2706	Alan Novi Tompunu, Nelly Masnila, Zakaria, Azwardi, Ainun Nabila	Public Service Announcement Implementation of Learning at the Sriwijaya State Polytechnic in Minimizing the Risks and Impacts Caused by the Covid-19 Pandemic	Politeknik Negeri Sriwijaya
13	15.00-15.10	2087	Husnawati, Shinta puspasari, Rian Rahmanda Putra	Principal Component Analysis Method For Image Segmentation Of Smart Meter Digital	Indo Global Mandiri University, Politeknik Negeri Sriwijaya

14	15.10-15.20	2838	Muhammad Haikal Satria, Arieap Jaenul, Adhes Gamayel	Design of Solar Powered Vaccine Backpack	Jakarta Global University
15	15.20-15.30	2798	Evelina , Amperawan Dewi Permata Sari , Sabilal Rasyad	TRAINER MODULE DESIGN OF ITEM SORTING EQUIPMENT BASED ON HEIGHT AND PLC-BASED TRAFFIC LIGHT PROTOTYPE IN THE SYSTEM LABORATORY	Politeknik Negeri Sriwijaya
16	15.30-15.40	2599	Ade Silvia Handayani, Ahmad Taqwa, Arsyiil Shiddik, Nyayu Latifah Husni	Prototype Development Of Heartbeat And Body Temperature Monitoring System Based On Internet Of Things	Politeknik Negeri Sriwijaya
17	15.40-15.50	2661	Ade Silvia Handayani, Jefri Alkausar, Sarjana, Nyayu Latifah Husni, Siti Nurmaini, Irsyadi Yani	Implementation of Fuzzy Logic Type-2 On Mobile Robot Navigation System	Politeknik Negeri Sriwijaya
18	15.50-16.00	2805	Nyayu Latifah Husni, Arganda Meranda, Destra Andika Pratam, Ekawati Prihatini, Selamat Muslimin, Ade Silvia Handayani	Wireless Detector for Lung Sound Disorder based on DSP TMS320C6416 Module	Politeknik Negeri Sriwijaya
19	16.00-16.10	2806	Nyayu Latifah Husni, Qodry Maulana, Ekawati Prihatini, Ade Silvia Handayani, Firdaus	New Navigation Strategy for G-Bot	Politeknik Negeri Sriwijaya
20	16.10-16.20	2824	Ade Silvia Handayani, Nyayu Latifah Husni, Al Fatur Sayid, Rosmalinda Permatasari, Carlos R Sitompul, Sopian Soim	Air Detection Environment System (Adev) Using Android Application for Air Quality in Park Area	Politeknik Negeri Sriwijaya, Universitas Tridianti Palembang
21	16.20-16.30	2775	Carlos R Sitompul, Zainuddin Nawawi, Irfan Jambak, Rumiasih Rumiasih, Anton Firmansyah, Indah Susanti	The condition of the surface severity of the polluted insulator based on harmonic measurements of leakage currents	Politeknik Negeri Sriwijaya

RUNDOWN TRACK 3 (Social Science)

ROOM : 7
 TIME : Wednesday, 11 November, 2020/ 13.00 - 16.30
 ARTICLES : 16
 MODERATOR : Doeslohal Djumrianti, Ph.D/ Dr. Marieska L

NO	Time	ID	AUTHORS	TITLE	AFFILIATION
1	13.00-13.10	2575	Abd. Hamid, Ummasyroh, Jusmawi Bustan, Heri Setiawan	The Influence Of Travel Experience And Destination Quality On Tourist Satisfaction Visiting Culinary Tourism Destinations	State Polytechnic Of Sriwijaya
2	13.10-13.20	2576	A.Jalaludin Sayuti, Munparidi, L.Suhairi Hazizma, Alditia Detmuliati	The Effect Of Organizational Support And Job Characteristics On Employee Engagement	State Polytechnic Of Sriwijaya
3	13.20-13.30	2578	Afrizawati , Faisal, Divianto, Yahya	Implication Of Work Ability And Organization Climate Against Turnover Intention Through Work Satisfaction As Intervening Variables In Global Capital Investama, Palembang PT.	State Polytechnic Of Sriwijaya
4	13.30-13.40	2581	Purwati, Yusleli Herawati, Elisa, Marieska Lupikawati	The Linkage Between Market Orientation, Learning Orientation, And Innovation Capabilities Of Small Scale Restaurant	State Polytechnic Of Sriwijaya
5	13.40-13.50	2589	Yusri, Sri Gustiani, Tiur Simanjuntak, Evi Agustinasari	Strengthening Students' Writing On Project Report Via Project Based Learning To The English Department Students Of Sriwijaya State Polytechnics	State Polytechnic Of Sriwijaya
6	13.50-14.00	2596	Deslochal Djumrianti, Pridson Mandiangan , Hanifati, Alfitriani	Analysis Of Daily Conversation For Online Drivers	Politeknik Negeri Sriwijaya

7	14.00-14.10	2711	Farida Husin, Ibnu Maja, Yulianto Wairan, Lindawati	THE STUDENTS' PERCEPTIONS OF RELIGIOUS RADICALISM AT STATE POLYTECHNIC OF SRIWIJAYA	Politeknik Negeri Sriwijaya
8	14.10-14.20	2733	Koryati Koryati, Aisyah Shahab, Zulkifli Zulkifli, Nian Masna Evawati	The Correlation between Students' Listening Comprehension Strategy and Their TOEIC Score at State Polytechnic of Sriwijaya	Politeknik Negeri Sriwijaya
9	14.20-14.30	2734	Lisbet Octovia Manalu, Budi Rustandi, Budi Somantri	DESCRIPTION OF ANXIETY LEVELS OF PRE SCHOOL CHILDREN WITH THALASEMIA WHO WILL GET BLOOD TRANSFUSE IN THE THALASEMIA POLY AT AL-IHSAN BALEENDAH HOSPITAL, BANDUNG	Rajawali Health Institute Bandung
10	14.30-14.40	2759	Setiawan Priatmoko, Dávid Lóránt,,	A Story of a Cup of Coffee Review of Google Local Guide Review	STIE Pariwisata API Yogyakarta, Indonesia/ Szent Istvan University School of Economics and Regional Science Gödöllő, Hungary
11	14.40-14.50	2788	Desloehal Djumrianti , Augustus E. Oseso-Asare	Asian women's roles in family holiday: A case study of Indonesian females	Politeknik Negeri Sriwijaya , University of Sunderland, United Kingdom
12	14.50-15.00	2789	Desloehal Djumrianti , Augustus E. Oseso-Asare	Analysis of Daily Conversation for Online Drivers	Politeknik Negeri Sriwijaya , University of Sunderland, United Kingdom

13	15.00-15.10	2791	Muhamad Erwin, Ahmad Taqwa, Dicky Seprianto, Ahmad Zamheri	The Customary Philosophy of the Anak Dalam Tribe as part of the soul of the nation's law	Politeknik Negeri Sriwijaya
14	15.10-15.20	2612	Alhushori, Yusnizal Firdaus, Markoni Badri, Muhammad Yusuf	THE INFLUENCE OF LEADERSHIP STYLE, AND MOTIVATION WORK STRUCTURE TO MUARA ENIM COMMUNITY HEALTH CENTER (EQUATION STRUCTURAL METHOD APPROACH)	State Polytechnic Of Sriwijaya
15	15.20-15.30	2713	Ayu Puspasari	SETTLEMENT OF CASES OF TERMINATION OF EMPLOYMENT AT THE INDUSTRIAL RELATION COURT IN PALEMBANG CITY	Politeknik Negeri Sriwijaya
16	15.30-15.40	2845	Nur Rizka Erlianta, Marieska Lupikawaty, Titi Andriyani	The Effect of Financial Technology on Financial Inclusion in SMEs in Palembang City	Politeknik Negeri Sriwijaya

RUNDOWN TRACK 3 (Social Science)

ROOM : 8
 TIME : Wednesday, 11 November, 2020/ 13.00 - 16.30
 ARTICLES : 16
 MODERATOR : Dr. Sari Lestari ZR/ Dr. Rita Martini.

NO	Time	ID	AUTHORS	TITLE	AFFILIATION
1	13.00-13.10	2217	Sarikadarwati, Henny Yulsiati, Sandrayati, Susi Ardiani	The Effect Of Patient Satisfaction Levels On Competency And Facilities At Siti Khadijah Islamic Hospital, Palembang City	Polytechnic Of Sriwijaya
2	13.10-13.20	2579	Aladin, Evada Dewata, Yuliana Sari, Yuli Antina Aryani	The Role Of Small And Medium Enterprises (Smes) And Economic Growth In Indonesia: The Vecm Analysis	Politeknik Negeri Sriwijaya
3	13.20-13.30	2583	Rita Martini, Endah Widyastuti, Sukmini Hartati, Zulkifli, Riana Mayasari	Poverty In South Sumatra Province Is Viewed From Village Fund And Village Fund Allocation	Polytechnic State Of Sriwijaya
4	13.30-13.40	2602	Rosyarmaini, Maria Maria, Nurhasanah Nurhasanah, Yevi Dwitayanti	Impact Of Bumdesa Management On Padesa In Penukal Abab Lematang Ilir Regency	State Polytechnic Of Sriwijaya
5	13.40-13.50	2803	Sri Hartaty, Eka Jumarni F, Anggeraini O, L. Vera R.P.	Factors Affecting Economic Growth in Regencies and Cities in The Province of South Sumatra in 2010 - 2018	Politeknik Negeri Sriwijaya
6	13.50-14.00	2621	Indra Satriawan, Ardiyan Natoen, Periansya, Sopiyan AR	The Effect Of Local Government Characteristics And Bpk Audit Opinions On The Financial Performance Of Local Governments (Study On Local Governments In South Sumatra)	Sriwijaya State Polytechnic

7	14.00-14.10	2519	Neneng Miskiyah, Sari Lestari Zainal Ridho, Hadi Jauhari, Ketu Purnamasari	Dimensions Of Women's Empowerment	Sriwijaya State Polytechnic
8	14.10-14.20	2658	Edwin Frywaruwah, Bainil Yulina, Sulaiman, Siska Aprianti	The Effect of Entrepreneurial Competencies on Business Performance (empirical study on MSMEs of Palembang woven fabric)	Politeknik Negeri Sriwijaya
9	14.20-14.30	2756	Riza Wahyudi, Muhammad Thoyib, Firmansyah , Darul - Amri	Analysis of Marketing Mix Strategy on Consumer Value in Small and Medium Enterprises in Palembang, South Sumatera (Case Study of Palembang's Traditional Processed Food)	Politeknik Negeri Sriwijaya
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Filtration and Electrocoagulation as a Combined Process for Electroplating Wastewater

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ABSTRACT

Electroplating is a method of using electrolyte solutions to cover solid materials with metal layers. The strong metal waste from the electroplating process is contained in B3 waste (Hazardous Toxic Materials). One of the methods for electroplating is by combining filtration and electrocoagulation methods. The parameters observed in this study were total dissolved solid (TDS), pH, conductivity, and Cr and Ni electroplating wastewater content before and after treatment. This research was conducted by adjusting the processing time and the distance between the electrode plates. The cycle time is 30, 60, 90, 120 and 150 minutes with an electrode spacing of 1, 2 and 3 cm. This feedback is to the activated carbon filter and the silica sand by the electrocoagulation process using aluminum electrodes. The feedback is filtered with a cartridge filter and a reverse osmosis (RO) filter. The results show that the optimum TDS, pH, conductivity and levels of Cr and Ni occur at a processing time of 150 minutes at an electrode distance of 1 cm. The pH value rose from 5.63 to 7.89, and the TDS decreased from 234 ppm to 73.6 ppm. Conductivity also decreased from 1466 $\mu\text{s} / \text{cm}$ to 148.5 $\mu\text{s} / \text{cm}$. Cr and Ni have decreased from 8.43 ppm to 0.29 ppm and from 9.288 ppm to 0.893 ppm. The outcomes of this waste treatment met the requirements for clean water (Regulation of the Minister of Health of the Republic of Indonesia, No 32 of 2017) and industrial wastewater (Regulation of the Minister of the Environment of the Republic of Indonesia, No 5 of 2014).

Keywords: *electrode, electroplating, electrocoagulation, filtration*

1. INTRODUCTION

Metals such as iron, brass and aluminium are commonly used as industrial and domestic products. In order to improve surface quality, particularly in terms of beauty and corrosion resistance, this industrial material must be coated with stainless metals such as silver, nickel and chromium. Electroplating or gilding is a method of coating a solid material with a metal layer by letting the electrical current flows through an electrolyte solution. The strong metal waste from the electroplating process is contained in B3 waste (Hazardous Toxic Materials) [1-2].

Some of the metal elements in electroplating wastewater include iron, chromium, zinc, nickel, manganese and copper. The amount of waste produced in the electroplating process is not too high, but the level of toxicity, particularly chromium, nickel and zinc, is hazardous. The characteristics and toxicity of wastewater electroplating differ according to operational

conditions, the method of coating, and procedure of washing [3-6].

The direct disposal of waste from the electroplating process to the environment without prior treatment can cause environmental pollution. These contaminants can contaminate microorganisms and their environment in the form of solutions, colloids and other types of particle. Given the significance and magnitude of the environmental effects, treatment is required before waste effluent is discharged into the environment [7-9].

Some methods used to treat electroplating waste include precipitation, microorganisms, ultrafiltration, reverse osmosis, and others. Precipitation is the most economical process, but precipitation is also capable of creating added chemical waste. Other methods also have disadvantages, such as the high cost necessary and difficult to achieve on an industrial scale [10-14].

The electrocoagulation approach is another alternative that can be used for electroplating waste treatment. Electrocoagulation is a process that is effective and simple to operate to minimize heavy metal

content by electrolysis reactions and does not involve the addition of chemical coagulants [15-18].

In 1995, Matteson introduced an electronic coagulator in which the electrical current applied to the anode would dissolve aluminium into a solution that would then react with hydroxy ions (from the cathode) to form hydroxy aluminium. Hydroxy flocculates and coagulates suspended particles resulting in a method of separation of solids from wastewater [19, 20].

This is illustrated by a number of previous studies. One example is the research conducted by Ratnawati [20], who treated electrocoagulation waste using Fe electrodes. Electroplating waste treatment using electrocoagulation is known to be capable of reducing Cu, Ni and Cr concentrations at the lowest concentrations.

The electroplating wastewater treatment with electrocoagulation methods in this study is conducted using different electrodes from previous studies. In earlier studies, the electrodes used are aluminium electrodes. The parameters observed in this study were TDS, pH, conductivity, and Cr and Ni electroplating wastewater content before and after treatment. This research was performed by adjusting the processing time and distance of the electrode.

2. RESEARCH METHODE

This research was conducted to determine the characteristics of electroplating waste prior to and after treatment with a combination of filtration and electrocoagulation processes. The electroplating waste to be used is extracted from the Cr and Ni coating in the Kertapati region in Palembang, South Sumatra. The parameters observed were TDS, pH, conductivity, and Cr and Ni contents.

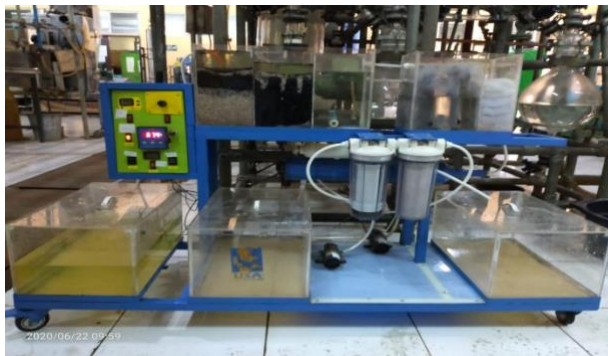


Figure 1 Combination of Filtration and Electrocoagulation Process for electroplating wastewater

The materials used in this study were aluminium plate electroplating waste as an electrode with dimensions of 22x12.5 cm, Cr and Ni standard solutions and H₂SO₄.

The instruments used in this study included a range of electrocoagulators, Waterproof cyberscan PCD 650, GBC AAS 932 Plus and ICP-OES.

The data collection stage was focused on variations in processing time and electrode distance. Sample treatment varied with processing times of 30, 60, 90, 120 and 150 minutes and with electrode distances of 1, 2 and 3 cm. The electroplating waste management method with a filtration and electrocoagulation device is shown in Figure 1.

3. RESULTS AND DISCUSSION

3.1. Results of Characterization of Electroplating Waste before the Filtration and Electrocoagulation Process

Electroplating wastewater is first characterized before filtration and electrocoagulation treatment to establish the initial conditions of electrification waste before treatment. The results of the characterization of electroplating waste are shown in Table 1.

Table 1. Results of initial characterization of electroplating waste

No.	Parameter	Results	Standard*
1	TDS (ppm)	234	1000
2	pH	5.63	6-9
3	Conductivity (µs/cm)	1466	20-1500
4	Cr (ppm)	8.43	0.5
5	Ni (ppm)	9.288	0.1

* Regulation of the Minister of the Environment of the Republic of Indonesia, No 5 of 2014

*Regulation of the Minister of Health of the Republic of Indonesia, No 32 of 2017.

3.2. Effect of Electrode Distance and Processing Time on TDS

TDS (Total Dissolved Solids) is the quantity of substance dissolved in water. This substance can be in the form of carbonate, bicarbonate, chloride, sulfate, nitrate, calcium, magnesium, sodium, organic ions, colloidal compounds and others. TDS can be used to measure the consistency of drinking water since it represents the number of ions in the water. The value of the water quality criteria for the TDS test parameters approved under the national standard is 1000 ppm (Health Minister of the Republic of Indonesia, 2017).

Figure 2 indicates that the TDS value in the waste sample decreased by 234 ppm from the initial TDS after passing through the electrocoagulator. After processing, the TDS value decreased to 73.6 ppm. This condition occurs at a processing time of 150 minutes and an electrode distance of 1 cm. The effects of this decrease show that the longer the processing time and the closer the electrode size, the lower the TDS value. The waste is treated with aluminium electrodes with a distance range of 1, 2 and 3 cm. The variation of the electrode distance is matched to the width of the electrocoagulation bath. The electrode distance of 1 cm

produces more coagulants than the electrode distances of 2 and 3 cm. Process time and electrode distance can affect the rate of formation of the coagulant, regulate the speed and size of the bubbles and the growth of the floc, which may bind the pollutants to the waste so that more floc is created. The bubbles produced during the electrocoagulation phase bring up the contaminants in the waste so that the current contaminants can be easily collected together. The Al^{3+} ion produced at the anode reacts with the OH^- ion generated at the cathode to form $Al(OH)_3$ which binds existing pollutants so that they can be precipitated more easily.

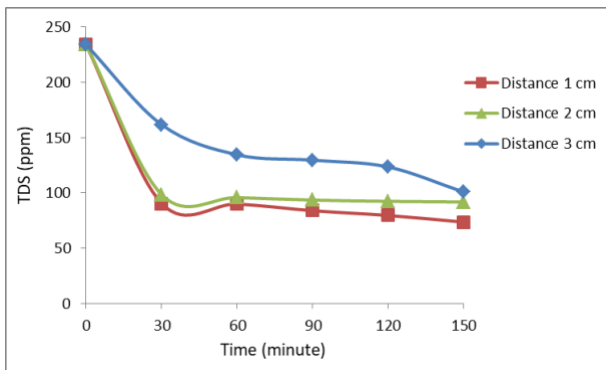


Figure 2 Effect of electrode distance and processing time on TDS

3.3. Effect of Electrode Distance and Processing Time on pH

The pH is the concentration of hydrogen ions (H^+) in water. The pH value is significant as a water quality parameter because it can monitor the form and rate of multiple reactions in the water. The increase in pH value in the electrocoagulation process is due to the addition of alkaline Al^{3+} ions to the water. As accumulation occurs, the hydrolysis of the water induces a reaction to the hydroxyl ion. This reaction produces 3 ions of $Al(OH)$ and hydrogen.

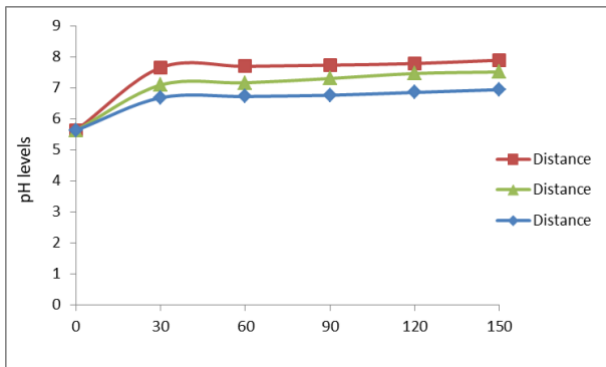


Figure 3 Effect of electrode distance and processing time on pH

Electroplating waste was electrocoagulated with aluminium electrodes with distance variations of 1, 2,

and 3 cm. Based on Figure 3, the pH value of the electroplating waste sample from the initial pH of 5.63 (acid) is increased. The closer the electrode gap results in the increment of pH value. Following sampling, the pH value has increased to 7.89 (neutral) with a processing time of 150 minutes and an electrode distance of 1 cm. Water electrolysis produces hydrogen gas ions and hydroxide ions in the electrocoagulation process. The radius of 1 cm from the electrode accelerates ion exchange by 2 to 3 cm from the electrode.

Moreover, the longer the treatment time, the quicker hydrogen gas and hydroxide ions can form. The hydroxide ion reaction produces a coefficient more significant than the hydrogen coefficient. This result shows that hydroxide ion formation happens when the size of the electrode is closer, and the treatment time is longer. This condition raises acidity to close or neutral pH.

3.4. Effect of Electrode Distance and Processing Time on Conductivity

Conductivity is a measure of the ability of a substance to conduct electrical current. Water conductivity is directly related to the concentration of dissolved solids ionized in water. Conductivity is also known as specific conductivity. Conduct (G) is the inverse of resistance (R). Each material has specific properties, which are defined as resistivity (ρ) in ohmmeters (P).

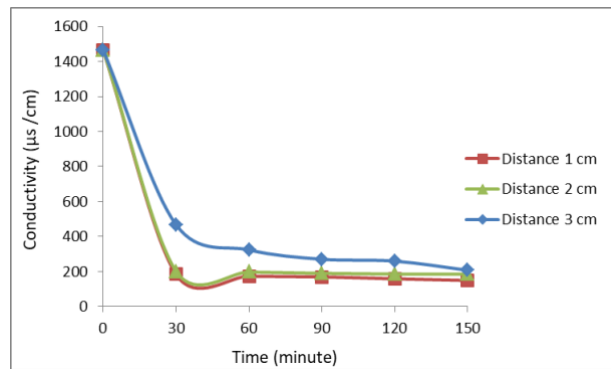


Figure 4 Effect of electrode distance and processing time on conductivity

Electroplating waste treatment is carried out by an electrocoagulation device that uses electricity in the process. The electrodes used are aluminium with distance variations of 1, 2, and 3 cm, which affect the conductivity value of the treated waste. Figure 4 shows that the conductivity value in the waste sample decreased from an initial conductivity of $1466 \mu s/cm$ to $148.5 \mu s/cm$ after passing through the electrocoagulator. This condition occurs at a processing time of 150 minutes and at an electrode distance of 1 cm. The effects of this decrease show that the longer the processing time and the closer the electrode gap, the

lower the conductivity value. The electrode distance of 1 cm accelerates the ion exchange compared to the electrode distances of 2 and 3 cm, making the coagulant faster. Process time and electrode distance can affect the rate of formation of the coagulant, regulate the speed and size of the bubbles and the growth of the floc, which may bind the pollutants to the waste so that more floc is created. The number of ions influences the conductivity value in the solution. The greater the number of dissolved solids, the greater the number of ions in the solution, since the amount of dissolved solids includes ions which are arranged into dissolved solid compounds. This result indicates that the importance of TDS and conductivity would have a close relationship.

3.5. Effect of Electrode Distance and Processing Time on Cr

Chromium (Cr) is a metal with a high degree of toxicity. Cr metal in the electroplating industry is used in the hard-coat process to be anti-dull. The toxic effect of Cr from electroplating waste can be bioaccumulative and can not be decomposed. The Cr content data obtained by Atomic Adsorption Spectrophotometer measurement were analyzed to determine the relationship between Cr metal absorption and processing time and electrode distance. The electrodes used are aluminium with a distance variation of 1, 2 and 3 cm.

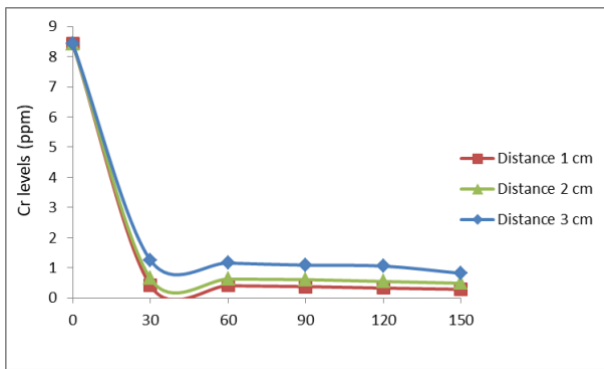


Figure 5 Effect of electrode distance and processing time on Cr

Figure 5 demonstrates the effects of electroplating waste treatment by electrocoagulation technology. The initial Cr content for electroplating waste was 8.43 ppm. The Cr content decreased along with the longer the processing time and the closer the electrode distance so that the optimum Cr content was 0.29 ppm at 150 minutes of processing time and 1 cm of electrode distance. This condition occurs due to more coagulants generated by the long processing time and the close electrode gap. The higher the coagulant mass, the simpler the $\text{Cr}(\text{OH})_3$ precipitates to form and the lower the Cr metal content. Electrode distance of 1 cm

accelerates ion-exchange compared to electrode distances of 2 and 3 cm. Cr metal in waste interacts with OH^- ion, which allows Cr to precipitate in waste to form $\text{Cr}(\text{OH})_3$. The $\text{Cr}(\text{OH})_3$ deposit can act as a floc centre that is electropositive and absorbs excess OH^- in the solution so that it forms a floc and can draw other metal cations to the waste..

3.6. Effect of Electrode Distance and Processing Time on Ni Metal Content

Nickel is used in the electroplating industry for decorative coatings of Cr metal coating steel parts. Ni metal is also metal with a hazardous toxicity level. Ni material data collected through Atomic Adsorption Spectrophotometer measurements were analyzed to determine the relationship between Ni metal absorption and processing time and electrode distance.

Electroplating wastewater is treated using aluminium electrodes, which vary in distance gap from 1, 2 and 3 cm apart during electrocoagulation process. Figure 6 shows that Ni levels decreased from an initial Ni level of 9.288 ppm after being treated with electrocoagulation technology. Ni levels decreased together with the more extended the processing time and the closer the electrode distance so that the optimum Ni content was 0.893 ppm at 150 minutes of processing time and 1 cm of electrode distance. This result is due to more coagulants will be generated by the long processing time and the closer electrode gap. The electrode distance of 1 cm accelerates the ion exchange compared to the electrode distances of 2 and 3 cm so that more coagulants are produced. The more coagulant mass ratio allows the formation of $\text{Al}(\text{OH})_3$ deposits. The more coagulant the mass and the higher the pH value, the more OH^- ions react with Ni Metal to form $\text{Ni}(\text{OH})_2$ precipitates in the waste.

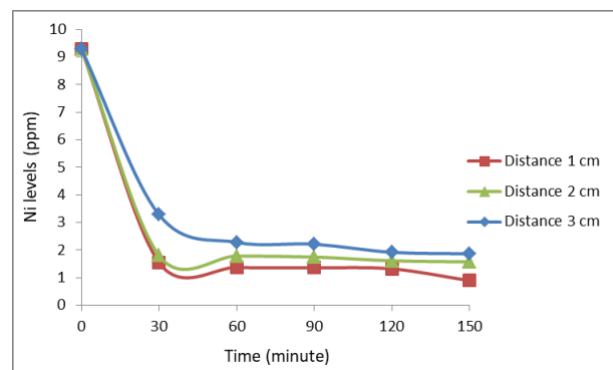


Figure 6 Effect of electrode distance and processing time on Ni metal content

The objective of electroplating waste treatment using electrocoagulation in this study is to compare the reduction of pollutants in electroplating waste before and after treatment. The results of this study show that it is suitable for public consumption based on clean water standards (Regulation of the Ministry of Health of the

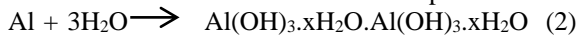
Republic of Indonesia No. 32 of 2017) and industrial wastewater standards (Regulation of the Ministry of Health of the Republic of Indonesia No. 32 of 2017).

Aluminium electrodes are used in this processing since it is inexpensive and easy to find. The results show that the Al-Al electrode is the optimal electrode. This mixture is used for further optimisation. The most floc formed in the combination of Al-Al electrodes is the aluminium electrodes quickly form Al(OH)₃ hydroxide and complex hydroxyl polymers. The more flocks that are created, the more contaminants are consumed to make the reduction of pollutants in electroplating liquid waste more optimal. The reaction in the electrode cell to the anode and cathode used in aluminium is as follows:

Reaction on the anode:



The anodic process leads to the aluminium metal being dissolved into Al³⁺ ion molecules. The formed ions are hydrolysed and produce solid Al(OH)₃.xH₂O that can not be dissolved in water. The Response:



The reaction is produced in a solution that can serve as a coagulant for the coagulation-flocculation phase that occurs in the next electrocoagulation cell process.

The reaction at the cathode:



Based on the results of the study, it is established that the optimum TDS, pH, conductivity and levels of Cr and Ni are observed at 150 minutes of processing time and 1 cm of electrode distance. This result proves that the longer the processing time and the closer the distance between the electrodes would result in more coagulants. The increase increment of coagulants has increased the pH value, while the TDS value and conductivity, as well as the Cr and Ni levels, have decreased.

4. CONCLUSION

The results of electroplating waste characterization after treatment by filtration and electrocoagulation showed changes. The pH value rose from 5.63 to 7.89, and the TDS decreased from 234 ppm to 73.6 ppm. Conductivity also decreased from 1466 µs/cm to 148.5 µs/cm. Cr and Ni have decreased from 8.43 ppm to 0.29 ppm and from 9.288 ppm to 0.893 ppm.

Process time and electrode distance in the electrocoagulation method affect the consistency of the electroplating waste properties. The longer the processing time and the closer the distance between the electrodes would result in more coagulants. The coagulants increment has increased the pH value, while the TDS value and conductivity, as well as the Cr and Ni levels, have decreased.

Based on the results of the analysis, the optimum levels of TDS, pH, conductivity, and Cr and Ni were detected at 150 minutes of processing time and 1 cm of electrode distance.

AUTHORS' CONTRIBUTIONS

All of the authors are involved in the process of designing the equipment and analysis electroplating wastewater. 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 sample electroplating wastewater. The fourth author is responsible for funding arrangement.

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