

2024 9th International STEM Education Conference (iSTEM-Ed 2024)

**Cha-am, Hua Hin, Thailand
31 July - 2 August 2024**



**IEEE Catalog Number: CFP24Y67-POD
ISBN: 979-8-3503-6598-6**

**Copyright © 2024 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP24Y67-POD
ISBN (Print-On-Demand):	979-8-3503-6598-6
ISBN (Online):	979-8-3503-6597-9

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

CONTENTS

Paper ID	Title	Authors
P04465	Space STEM Education Guide for Global Positioning System Total Electron Content (GPS TEC).....1	Chollada Pansong, Thanapon Keokhumcheng Patiphan Sumniang Wishapol Sittichai Canjie Huang Prasert Kenpankho
P04495	Gaps between Expectations and Facts towards STEM E-Learning in Electrical and Electronics Sciences during the COVID-19 Pandemic in RAVTE University Network.....7	Pakornkiat Sawetmethikul Chollada Pansong Arnon Niyomphol Ana Ana Nguyen Vu Lan Sirilak Hanwattananukul Suthat Hongdumnuen Pataphiphat Techalimsakul Songtham Deewanichsakul
P04550	Fostering Synergies: A Dynamic Approach to Collaborative Teaching and Learning in Vocational Education for Industrial Robotics Technology between ChangZhou Vocational Institute of Mechatronics Technology and Rajamangala University of Technology Thanyaburi.....13	Chollada Pansong Liu Zexiang Min Jin Pakornkiat Sawetmethikul Kasina Chinsri Taweesak Sukcharoensup
P04722	At the Intersection of Service Learning and Engineering Education for Sustainable Development: A Bibliometric Review of Research (2004-2023).....19	David Kongpiwatana Narong Nitith Wattanaphak
P04850	Enhancing STEM Project Instructional Competence: A Short Training Camp for Secondary School Teachers in Thailand.....25	Natthawin Cho Thanaporn Thanodomdech Sakol Warintaraporn Chomcheun Siripunkaw Denchai Prabjandee
P04923	The Impact of Digital Role-Playing Games in Engineering Education: A Preliminary Review.....31	R.M.K. Raja Rosli Anies Faziehan Zakaria
P04931	Development of E-Module of Heutagogy Learning Approach for Measuring Instruments Course, Electrical Technology Certificate Programme in Community College.....37	Aryati Ramlan Tee Tze Kiong
P04966	Implementing a Constructionist Project-Based Learning Approach to Enhance Chemistry Learning Achievement in Eleventh Grade Students.....43	Sarochar Khambuo Puthyrom Tep Surat Tanprasertkul
P05070	Current and Emerging Trends in Python Programming Learning.....48	Amir Ahmad Santosh Ray Ali Nawaz

CONTENTS (Cont'd)

Paper ID	Title	Authors
P05101	The Development of Learning Skills and Innovation of STEM3.0 Education in Autonomous Robotic Control for Secondary School, Thailand.....54	Saranphat Kanchanakom Nantinee Soodtoetong O-por Klubsakul Surachet Channgam Eakbodin Gedkhaw
P05104	Improving Students' Attitudes toward STEM and Their Interest in STEM Careers: A Collaborative Learning Approach.....59	Trung Dang Ngoc Xinh Le Thi Hong Bui Van
P05109	A Data-Driven Design Module Development for Enhancing Multi-Attribute Decision-Making (MADM) Efficacy.....66	Rozali M. Z Zakaria A. F
P05123	The Effects of Kahoot! on Students' Achievement in Math Classrooms.....72	Poranee Khayo
P05139	Development of a Training Course to Promote Non-Cognitive Skills Using Problem-Solving Learning for Automation Control.....76	Yuraporn Padunggun Ekkamol Boonyapalanant Poolsak Koseeyaporn
P05142	The Overview of Higher Vocational School Teachers' Information and Communication Technology (ICT) Competency: A Preliminary Study from Bibliometric Review and the Perspective of Teachers and Students.....82	Zou Xuanyun Nur Hazirah Hanifah Jambari
P05153	Welding Technology Students' Perception on the Use of Google Classroom Application at Vocational College.....89	Lai Chee Sern
P05161	Enhanced IoT-Based Simulation for Air Handling Unit (AHU) Operational Training.....96	Nizamuddin Razali Norfazirah Ahmad Johar Muhammad Zuhairi Abdul Jalil Mohd Hairwan Md Nor Debie Devisser Gerijih Khairul Anuar Abdul Rahman
P05168	Universal Design for Learning: Storytelling Application to Promote Learning for Children with Deaf.....103	Kanvipa Hongngam Chirapong Yanuchit Natchaphak Meeusah Venus Skunhom Jira Jisubha
P05186	Research on Key Elements of Total Quality Management of Online Teaching in Colleges and Universities: Based on Grounded Theory.....109	Hashima Bintihamid Li Lin Meng Wu
P05187	Promoting Entrepreneurial Mindset of Undergraduate Students by Using Design Thinking with Cooperative Learning.....118	Jarupuk Thepkaew Panisa Lertthahan Ekawat Nithichaiyo

CONTENTS (Cont'd)

Paper ID	Title	Authors
P05195	The Effectiveness of English Grammar Ability through Songs with Think- Pair- Share Technique of Undergraduate Students.....123	Nednipa Jiemsak Ruamsak Jiemsak
P05204	Architecture of Artificial Intelligence Entrepreneurship on Digital Ecosystem for Higher Education Institutions.....128	Katekeaw Pradit Pallop Piriyasurawong
P05207	Construction and Practice of PBL Teaching Model of Mechatronics Training Course for International Students in Higher Vocational Colleges based on STEM.....134	Min Jin Qingbin Jiang Xiaoyan Chen Shilin Ma Chollada Pansong Pakornkiat Sawetmethikul
P05218	Using Machine Learning to Explore On-Time Graduation Rates for STEM Master and Doctoral Degrees in Mainland China.....140	Deyu Zhang Worarak Ruengsarak Surapong Uttama Xionglei Zhao Weiju Long Yanfei Zhao
P05258	Enhancing Student Comprehension in Aviation Science and Aircraft Construction through Hands-On and Experiential Learning.....146	Puthyrom Tep Chinnapat Mongkholisiriwattana Watchara Thitayanuwat Parichat Cummon
P05302	Collaborative Learning in Bilateral Academic Training on Robotics Design and Development.....152	Patinya Sang-Aroon Sethakarn Prongnuch Tadchanon Chuman Aphirak Thitinaruemit Kalaphath Kounlaxay Chanida Niyomtum
P05316	Integrating CDIO and Problem Based Learning Frameworks for Industrial Internet of Things Training Course Development.....157	Kanokphon Fufon Supachai Puengsungwan Komkrit Chomsuwan
P05423	Exploring Demographic Disparities in the Mastery of Higher-Order Thinking Skills among Primary Schools Pupils.....163	Yee Mei Heong Mohd Faisal bin Mahmad Tee Tze Kiong Kok Boon Ching Nurulwahida Azid Andika Bagus Nur Rahma Putra
P05463	Development of Innovation-based Learning on Basic Electronic Components.....168	Suchada Sitjongsataporn Panlop Pantuprecharat

CONTENTS (Cont'd)

Paper ID	Title	Authors
P05471	Schizotypy, Manual Dexterity, and Cognitive Ability Distinguish STEM and Non-STEM Students.....173	Pavida Nithananon Valrin Intharasombat Gunjeera Chinpeerasatian Graham Pluck
P05481	Empowering Architectural STEM Education: Unveiling Student Experiences through Virtual Reality (VR) in Building Information Modeling (BIM) Course.....179	Try Ramadhan
P05483	Transformative Development of Vocational Education Management through Thai-Meister Framework: A Case Study of Kampong Chheuteal Institute of Technology, Kingdom of Cambodia.....186	Chollada Pansong Songtham Deewanichsakul Buncha Sansoda Arnon Niyomphol Sunheng Chhlen Kim Sochea Udomsak Jantontapo
P05490	Assessing Knowledge and Understanding of Competency-Based Learning Management through Integrated Contemplative Education of Coaching and Mentoring, and Research-Based Learning.....192	Supatthara Kongruang Tanawan Raksapongpanich
P05514	Development of English Reading Strategies through Collaborative Learning and Blended Learning for English Teaching Program Students, Rajabhat Universities.....197	Patthaporn Langprayoon Wanida Ruangsart
P05515	The Alternative Peculiarity Divination System Fixed on FONDB-Mean Filter for Persistent Amplitude Impulsive Outlier.....201	Vorapoj Patanavijit Darun Kesrarat Wilaiporn Lee Kanabadee Srisomboon Kornkamol Thakulsukanant
P05519	Implementing Four Aspects of STEM for Primary Childhood Education in a Robotic Learning Kit.....205	Indar Surahmat Karisma Trinanda Putra Nur Hayati Ahmad Zaki Arrayan Nita Andrianti Amanda Murtiningtyas
P05537	Cultivating Design Thinking Competency towards High School Students by using Real-World Problems.....209	Jarupuk Thepkaew Ekawat Nithichaiyo Panisa Lertthahan
P05538	Factors Influencing Students' Creative Abilities in Using Artificial Intelligence for Image Generation.....N/A	Quang Qui Tran Luan Trong Nguyen Nguyen Phuong Vy Le Phat Quy Le Huu Chi Nguyen Ai Tran Tran Thi Kieu Mi Nguyen

CONTENTS (Cont'd)

Paper ID	Title	Authors
P05540	FairyS: Development of a Board Game Integrated Elements of Vietnamese Folklore.....214	Quy Phat Le Luan Trong Nguyen Vy Nguyen Phuong Le Qui Quang Tran Chi Huu Nguyen Ai Tran Tran Mi Thi Kieu Nguyen
P05558	Classroom Management as Virtual World for Creating Professional Teaching Environment.....220	Pastraporn Thipayasothorn Amornchai Chaichana Aueamaumporn Phetsinchorn
P05560	Approaching Vietnamese Folktale Culture Through 3D Scanning Simulation.....225	Nguyen Huu Chi Luan Trong Nguyen Nguyen Phuong Vy Le
P05568	Humans and AI: SWOT Analysis of Teaching Methods and Knowledge Acquisition of Students.....230	Tran Ai Tran Luan Trong Nguyen Quy Phat Le
P05573	A Bibliometrics Analysis of Online Learners' Self-Regulation in Higher Education using Biblioshiny.....235	Yuslita Syafia
P05579	Echoes of Tradition: Virtual-Reality Media in Improving Spatial Space Experience 3D Virtual Tour of Kampung Adat Pulo Garut, West Java, Indonesia.....241	Mochamad Faathir Rahman Asep Yudi Permana Indah Susanti Juang Akbardin Karto Wijaya Sri Handayani
P05581	Critical Thinking Skill Enhancement with ECDIO Model in Electronics Industry.....249	Kasma Hayeechewea Komkrit Chomsuwan Wuttiorn Suamuang
P05582	Barriers to Students' Access to STEM Education in the Education System in Vietnam.....255	Vy Nguyen Phuong Le Luan Trong Nguyen Tran Ai Tran
P05583	The Role of Soft Skills in Developing Students' STEM Competence.....262	Mi Thi Kieu Nguyen Luan Trong Nguyen Quy Phat Le
P05588	The Development of Competencies-Based Curriculum in Solar Cell Installation System According to the National Labor Skill Standard in the Field of Solar System Installers, Level 1.....267	Krishda Srichanpiyom Chainarong Yensiri Prinya Dechpratum Nutthaporn Intakhruea

CONTENTS (Cont'd)

Paper ID	Title	Authors
P05589	Artificial Intelligence with Hands-On Exercises: Maze-Solver, Crawling Robot and Emotion Recognition.....271	Pongsiri Huang Amulya Bhattacharai Anand Dersingh
P05591	Robotic Kinematics Learning Guidance based on Game Engine Simulation.....277	Kantinan Saivichit Narong Aphiratsakun
P05594	Teaching STEAM and Engineering Education Through Project-Based Learning: Fostering Creativity and Innovation in Students.....281	Narong Sangwanateee Nisakorn Sangwanateee Kitsanasad Saisin
P05597	Strengthen Teaching Skills for 21st-century Skills in Thailand's Remote Area Using Design Thinking.....288	Panisa Lertthahan Jarupuk Thepkaew Ekawat Nitichaiyo
P05602	A Study on Japanese-Style STEAM Practices about "PAPER" for Early Childhood Education Focusing on the Sustainability Competencies.....294	Rumi Haraguchi Asami Ohnuki Genki Shiihashi Junko Ishizawa
P05603	Development of an Engineering Drawing Course Structure with CAD Software Integration using Multi-Level Rubric Assessment.....300	Krid Sakunkawinkorn Ravivat Rugsaj Chairat Kamrueng Jiradech Kongthon
P05604	The Development of a Blended Learning Management Model with a Project Base Virtual Classroom for Basic Computer Subjects.....306	Kanyawit Klinbumrung Kitti Surpare Pornwilai Sukmak
P05607	Learning Management of Task-based Learning Approach Together with Total Physical Response to Enhance the Speaking Skills of Primary 6 Students.....310	Jean Claire Morales Saiphin Siharak Sukanya Boonsri Surat Kwanboonjun
P05610	Technology and Graphic Design: Building a STEM Education Ecosystem for the Future.....315	Khanh Hoang Duong Luan Trong Nguyen
P05617	Implementing Overflow Warning Systems in Provincial Waterworks Authority Phetchaburi.....319	Wirote Jongchanachavawat Bureerak Sungkongmueng Noppon Mingmuang Satha Chanplang Chirapong Sritong Tabo Peemongkol Kumngern Sirawit Kaewpangkro
P05628	Development of Learning Innovations Supporting Digital Electronics Technology Competency.....323	Nutchanat Chumchuen Somsak Akatimagool

CONTENTS (Cont'd)

Paper ID	Title	Authors
P05629	Implementation Model of Capstone Project Through Collaborative Project-based Learning Using Application of Project Management.....327	Didin Wahyudin Tika Lestari Erik Haritman
P05638	Effectiveness of Board Game Raising Stroke Awareness Among Young Children.....333	Napapat Kiratikamolchai Puthyrom Tep Akekarach Panumphan
P05639	Digital Technology Integration in TVET for Tourism: A Case Study for an Android-Based Application Development and Implementation.....338	Muhammad Aqil HaibatuAkbar I Diki Fahrizal Jaja Kustija Irgi Surya
P05640	Development of Tracking and Backward Tracing System for an Automotive Parts Using Optical Character Recognition Technique.....344	Pongnarin Chaiyapet Buncha Wattana
P05641	The Implementation of Centrifugal Force in the Geometric Design of Highways for Safety Driving Comfort on the Cisarua-Ngamprah Roads.....348	Juang Akbardin Dadang Mohamad Yudi Sekaryadi Asep Yudi P A. Syamsudin A. Hadiana Aminudin M. Fatir
P05642	Analysis of Research in Programming Teaching and Learning Tools: Updated Review.....353	Ohud Abdullah Alasmari
P05643	Hill Climbing and Q-Learning on a Ball Balancing System.....359	Waikoonnart Jariyasuthumkul Xavier Jonathon Blake Narong Aphiratsakun
P05647	Promoting Computational Thinking Skills Through Game-Based Learning of Students in Lower Secondary School.....364	Siripon Saenboonsong Akarapon Poonsawad
P05648	Clustering Users as Trigger of Twitter Trending Topic Using Pandas Python and SQL Query.....368	Agus Heri Setya Budi Enjang A. Juanda Muhammad Nurhariantio Tasma Sucita H Henny Bambang Trisno
P05649	Development and Evaluation of a PANI/PMMA Composite Gas Sensor for Acetone Detection in Breath.....374	Natnaree Phukkaphan Chayanin Khunarak Teerakiat Kerdcharoen
P05650	Using Graphic Organizers to Improve STEM Learners' Information Literacy.....378	Suthee Ploisawaschai

CONTENTS (Cont'd)

Paper ID	Title	Authors
P05651	The Effect of Integrating CDIOS, Case Study and ChatGPT on Problem-Solving Skills: Comparative Study between Experienced and Inexperienced Training Staff.....382	Pathamawun Khangkhan Komkrit Chomsuwan Wuttiporn Suamuang
P05656	Integrated Problem-Based Learning with Moodle to Enhance Problem-Solving Skills among Employees.....388	Jakkaphong Aimkeaw Komkrit Chomsuwan Wuttiporn Suamuang
P05658	Vocational Students Learning Preferences and Choice of Profession.....394	Bolormaa Dalanbayar Batsaikhan Ulaankhuu Bayarmaa Tsogtbaatar
P05669	Platform of RMUT Talent Resource Management for Reforming the National Manpower System.....398	Warunee Ki-aien Walanrak Poomchalit Nuttakit Iamsomboon Nuchtiphong U-thong Boontarika Thongdonphum Anin Memon Amnoi Ruengwaree Sumonman Niamlang Phithak Sathitwantana Prin Nachaisit Anan Pongtornkulpanich Pimnapat Bhummakittipich Kritkanok Sutad Na Ayuthaya Saichol Chudjuarjeen Natthachot Rakthai Charoencheep Uthen Kamnarn Pramuk Unahalekhaka Krischonme Bhummakittipich
P05671	Build Up the Sustainable Talent Ecosystem: An Empirical Study of Taiwan AI Talent Demand Survey.....403	Nai-Dih Lin Yu-Cheng Chang Chung-Han Yeh Li-Fang Huang
P05672	Evaluating the Intention for the Student's Adoption of Artificial Intelligence for Learning Activities in Universitas Negeri Malang.....409	Dediek Tri Kurniawan Rizky Firmansyah Ahmad Fawaiq Suhanan Andro Agil Nur Rakhmad Adelia Shabirna Prameka
P05675	SPS Teacher's Perception of STEAM Concepts.....416	Leni Gonadi Hasnah Binti Mohammed Norazrena Abu Samah
P05677	Optimizing Course Scheduling Using Unitime Application for STEM Education.....423	Nurul Fahmi Arief Hakim Sisca Elvyanti Didin Wahyudin Iwan Kustiawan Naufal Nur Rafi

CONTENTS (Cont'd)

Paper ID	Title	Authors
P05681	Mapping of Non-Formal Education in Pastry and Bakery Skills in West Java.....429	Gita Garnapuspita Lilis Widaningsih Cica Yulia
P05683	Development Model of Self-Directed Learning with Digital Content Media to Enhance Electrical Teaching Skills for Students of Teacher Training Program.....433	Kitti Surpare Kanyawit Klinbumrung Pornwilai Sukmak Jumpon Udomchaibanjerd
P05684	Development of Game-Based Learning on Personal Income Tax Literacy and Mathematical Decision-Making for Strategic Tax Planning.....437	Supawich Panich Prachayapong Yasri Chalita Toopsuwan
P05686	Evaluation of the Impact of STEM Activities Related to the Ocean on Students' Gaining Ocean Literacy Based on Gender.....443	Widia Kemala Sari
P05687	Optimization of Electricity Consumption via Peak Time Reallocation: MATLAB Simulation and Arduino based Lab Implementation.....448	Saharat Kanchanakorn Monyneath Ros Amulya Bhattacharai Ushik Shrestha Khwakhali
P05688	Introducing Secondary School Students to Telecommunications Engineering through the WiFinder Project: Part I –Implementation of Handheld Device.....454	Watchara Amasiri Pirapat Waritkraikul Dahmmaet Bunnjaweht Nawin Somyat
P05689	Introducing Secondary School Students to Telecommunications Engineering through the WiFinder Project: Part II – Training Workshop.....459	Watchara Amasiri Pirapat Waritkraikul Dahmmaet Bunnjaweht Wachira Promsaka Na Sakolnakorn
P05695	Rethinking Learning Media and ICT Literacy Courses for Future Vocational Teachers: Ensuring Quality in Learning Media.....465	Muhammad Oka Ramadhan Dedi Rohendi Mustika Nuramalia Handayani Ilhamdaniah
P05696	Developing English Pronunciation through Social Media Platform by Using Flipped Classroom and Cooperative Learning of Computer Education students.....474	Kittiphop Mahawan Patthaporn Langprayoon
P05698	Transforming Children's Python Turtle Graphics Learning with LLM Technology: A Design Proposal.....479	Mondheera Pituxcoosuvann Yohei Murakami
P05699	Enhancing Industry's Role in Vocational Education: An Analysis of Challenges and Opportunities Based on a Literature Review.....485	Maman Somantri Resa Pramudita
P05701	Exploring Thai Engineering Students' Perceived Attitudes Toward Intercultural Competence in Internship Abroad: A Pre-Study Perspective.....492	Nasatorn Witayarat Dahmmaet Bunnjaweht

CONTENTS (Cont'd)

Paper ID	Title	Authors
P05702	The Needs Analysis of a Learning Framework to Enhance Problem-Solving Skills in IoT Course for Non-Engineer Learners.....497	Khomsan Reetanon Chanin Tungpantong Alisa Songsriwittaya
P05705	Job Mapping of Graduates of the UPI Fashion Design Education Study Program : Linearity Analysis and Career Determining Factors.....501	Puspa Nur Ayda Lilis Widaningsih Mumu Komaro
P05708	Navigating the Era of Disruption in the Construction Industry in Indonesia: Challenges for TVET in Architecture.....507	Yudhistira Kusuma Lilis Widaningsih Wiwi Widanengsih
P05709	The Development of Information Systems to Enhance Students' Punctuality and Responsibility.....511	Yotsaphat Jomtharak Wuttiorn Suamuang Surachai Suksakulchai
P05710	Project-Based Learning Integrating 5E Model for Improving Learning Outcome of Heat Transfer for Students in Mechanical Engineering Program.....516	Chotiwtut Prasopsuk Kittiwut Sutthivirode Tongchana Thongtip Pornjit Pratumsuwan
P05711	Automated Academic Service Questions Answering System with Chatbot via LINE OA.....521	Sareeyapon Prasertsri Chayapha Yotchimplee Pornwadee Dangdee Jirapinya Khadsee Porramaporn Boonserchchoo Piyanuch Juengjarone Jaruwat Patmanee
P05712	Game-Based Rapid Analysis and Discuss (G-BRAND) Learning Model: A Unique and Fun Learning Experience to Public Sector Accounting Courses.....525	Rizky Firmansyah Dediek Tri Kurniawan Muhammad Nadhif Priambada Utomo Ahmad FawaiqSuwanan Andro Agil Nur Rakhmad
P05713	Enhancing Science Education in Thailand: Implementing the CER Framework to Improve PISA Performance and Student Argumentation.....532	Arnon Buntha Pratchayapong Yasri Prempree Duangpummet
P05716	Analysis of EEG Data Activity During Reading Using Scanning and SQ3R Techniques.....538	Rosnee Ahad Lee Ming Foong Mohamad Zaid Mustafa Azmanirah Abd Rahman Norfaiza Fuad Fatin Fatinah Seri Kawi
P05718	A Study and Application of Fire Alarm System in Computer and Telecommunication Control Room.....543	Kanitta Hinon Jiraphat Promsuraphat

CONTENTS (Cont'd)

Paper ID	Title	Authors
P05719	Age Estimation from Acetabulum Using Digital Image Processing Techniques in Thai Population.....549	Supachard Krudtong Pasuk Mahakkanukruah
P05721	The Design and Construction of an IoT Learning Board Using ESP32 and FPGA.....552	Nopadon Maneetien Supakit Kawdungta Veerachai Jaikampan
P05722	A Study of Resilience Profile of First-Year Students During Hybrid Learning.....556	Aini Nazura Paimin Nurul Adawiyah binti Sulaiman Ahmad Khusairi Othman Mohd Shahril bin Mohd Noor Nur Hidayah Mohamed Yunus Nurul Hidayah Liew Abdullah
P05725	The Integrating Problem-Based Learning with Collaborative Learning to Develop Motivation.....560	Kullanat Thepkul Komkrit Chomsuwan Wuttiorn Suammung
P05726	Using Project-Based Learning to Enhance Scientific Process Skills for Grade 11 Students.....563	Patthamapun Boonprakom Wilasinee Wanpan
P05728	Digital Business Center as an Optimization of Digital Business Literacy and Entrepreneurship Education.....567	Ika Zutiasari Ita Prihatining Wilujeng Dede Rusmana
P05732	Semiconductor Synergy Capacity Building: Enhancing Laboratory Hands-On Excellence through University-Industry Collaboration.....573	Sumanin Suteerawattananon Danucha Prasertsom Jirawut Benjanarasut Bancha Janthong Witoon Kaewnet Cattareeya Suwanasri
P05737	Multi-Sector Collaboration for Students of Different Levels to Learn Digital Technology Skills using Competency Assessment from Learning to Create Pieces with a 3D Printers for Young Innovators Case Study: MogroWittayakom School.....579	Alongkot Terdyothin Pondthip Inyoo Tuanjai Archevapanich Thanavit Anuwongpinit Manit chansuthirangkool Boonchana Purahong
P05738	Utilization of Remote Laboratory as STEM Implementation (Case Study of Mechatronics Competency).....584	Jaja Kustija Irgi Surya Muhammad Aqil Khaibatul Akbar Diki Fahrizal
P05740	A Module for Infusion High Order Thinking Skills (iHOTS) into Measurement and Geometric among Form One Students.....590	M.F. Rosool Gani W.H.N. Wan Muda F. Ab Halim N. Ismail G. Khang Wen

CONTENTS (Cont'd)

Paper ID	Title	Authors
P05745	Competency of Learning Management through Video on Social Media Platform of Pre-Service Teachers with Collaborative Learning.....600	Boriboon Chobthamdee Somchay Suwanna
P05746	Research Trend about Internet of Thing Products in STEM Learning: A Bibliometric Analysis.....604	Aay Susilawati Iwan Kustiawan Diana Rochintaniawati Lilik Hasanah
P05748	Factors Predicting the Acquisition of Soft Skills among Students with Learning Disabilities in Vocational Special Education Secondary School.....609	Fazlinda Ab Halim Nurul Awanis Muhammad Bakaruddin Wan Hanim Nadrah binti Wan Muda