Parallel Pre-Conference Sessions

22 January 2019 (Tuesday) Time: 10.30am-12.30pm Venue: EUREKA, USM

Level Ground Floor: Auditorium 1

Research/Action Research

Hashimah Mohd Yunus

Level Ground Floor: Auditorium 2

Multiple Intelligences in STEM Education

Mohamad Termizi Borhan, Azneezal Ar Rashid, & Salmiza Saleh

Level Ground Floor: Auditorium 3

Project Based Learning (PjBL) Application in STEM: 21st Century Learning

Md Baharuddin Haji Abdul Rahman & P'ng Fei Mun

Level 1: PIPPA Seminar Room

Design Thinking in STEM Education

Maznah Ali

Level 2: MAPITA Seminar Room

Inquiry-based Learning: Solve HOT Questions in The Topic of Differentiation Through STEM Approach

Tan Phei Ling & Sarveswary Velayutham

Level 2: Teleconference Lab

Computational Instructional Design: The D3Ps'

Siti Zuraidah Md Osman

Time: 10.00am-12.30pm

Venue: School of Industrial Technology, USM

Room: 164

Applying STEM Education: Designing with Nature

Mahamad Hakimi Ibrahim & Dr. Norizan Esa

Parallel Pre-Conference Sessions

22 January 2019 (Tuesday)

Time: 2.30-4.30pm Venue: EUREKA, USM

Level Ground Floor: Auditorium 1

Research/Action Research

Hashimah Mohd Yunus

Level Ground Floor: Auditorium 2

Multiple Intelligences in STEM Education

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Level 2: Teleconference Lab

Computational Instructional Design: The D3Ps'

Siti Zuraidah Md Osman

Keynote Addresses

Venue: Dewan Budaya, USM

Day 1: 23 January 2019 (Wednesday)

Time: 9.30am-10.30am

Rethinking Integrated STEM Education: Past, Present and Future

Prof. Dr. Lindsey Conner

Dean

People & Resources

College of Education, Psychology and Social Work

Flinders University, Australia

Day 2: 24 January 2019 (Thursday)

Time: 9.30am-10.30am

The Canvas Linking of STEM Education from School to University

Professor Datuk Dr. Asma Ismail FASc

Vice Chancellor Universiti Sains Malaysia Penang, Malaysia

Invited Speaker Special Sessions

Day 1: 23 January 2019 (Wednesday)

Session 1: 2.30pm-3.30pm Venue: EUREKA, USM

Level Ground Floor: Auditorium 1

STEM Education in Malaysia: Why, What and How

Prof. Dr. Lilia Halim

Professor in Science Education Faculty of Education Universiti Kebangsaan Malaysia

Level Ground Floor: Auditorium 2

Best Practises in STEM Teaching and Learning - Initiative by Ministry of Education Malaysia

Dr. Ihsan Ismail

Head of National STEM Centre Educational Planning And Research Division Ministry Of Education Malaysia

Level Ground Floor: Auditorium 3

STEM Education in the Philippines: A Vital Approach to Sustainable Development

Associate Professor Dr. Jasper L. Pastrano

Associate Professor -Iloilo Science and Technology University President, ASMAC Philippines Iloilo City, Philippines

Level 1: PIPPA Seminar Room

Manufacturing in Science Education in Japan

Associate Professor Dr. Ryugo Oshima

Faculty of Education Chiba University, Japan

Invited Speaker Special Sessions

Day 2: 24 January 2019 (Thursday)

Session 2: 2.30pm-3.30pm

Venue: EUREKA, USM

Level Ground Floor: Auditorium 1

What Teachers Should Know in the 21st Century: How the Normal Developing Brain Learns- A Functional Neuroscience Perspective

Professor Dato' Dr. Hj Jafri Malin Datuk Hj Abdullah

Director

Brain Behaviour Cluster, School of Medical Sciences, Universiti Sains Kubang Kerian, Kota Bharu, Kelantan, Malaysia

Level Ground Floor: Auditorium 2

Higher Order Thinking or Computational Thinking: Which One is More Important in STEM Learning?

Professor Kamisah Osman

Professor in Science Education Faculty of Education Universiti Kebangsaan Malaysia

Level Ground Floor: Auditorium 3

Bridging the STEM Skills' Gap That Involves Education and Industrial Commitments

Taufek Muhamad

Deputy Director Administration SEAMEO RECSAM, Penang, Malaysia

Level 1: PIPPA Seminar Room

Master of Cognitive Neurosciences: A New Postgraduate Course for Teachers

Associate Professor Dr. Aswati Hamzah

Lecturer in Educational Psychology Universiti Sains Malaysia Penang, Malaysia

Parallel Sessions

Day 1: 23 January 2019 (Wednesday)

Parallel Session 1: 11.00am-1.00pm

Venue: EUREKA, USM

Level Ground Floor: Auditorium 1

STEM Education in Industry 4.0 Malaysia

Nurzatulshima Kamarudin & Lee Tze Jiun

A Framework for Holistic Assessment of Computational Thinking Skills

Debby E. Sondak & Kamisah Osman

STEM Education as A Catalyst for National Development: Problems and Prospects in Nigeria.

Yaro Umar

Influence of Higher Order Thinking Skills and Metacognitive towards Hands-on Teaching in Science among Primary School Science Teachers

Punnithann Subramaniam & Tajularipin Sulaiman

Exploring the Potential of Interactive Leaning Object as Non-Face-to-Face Learning among Secondary School Practice Student Teachers in the Philippines

Sarah Namoco & Rozniza Zaharudin

The Learning Model of Organic Chemistry Integrated Ethno-STEM to Develop Characters Conservation and Entrepreneurs Students Low-Cost Spectrometer: Calibration, Spectra Extraction, Absorption

Sudarmin, Woro Sumarni & Rr Sri Endang Pujiastuti

Parallel Session 1: 11.00am-1.00pm

Venue: EUREKA, USM

Level Ground Floor: Auditorium 2

A Pattern Recognition Technique of Electroencephalogram Signals Based on Neural Network in Developing Intrinsic Motivation towards STEM

Norzaliza M.Nor, Sh-Hussain Sh-Salleh, Tajudin Ninggal, & Hadri Hussain

Enhancement of STEM Education through Innovation of Nanotechnology

Muhammad Arif Khan

Football Work-Based Learning [F-Wbl]

Md. Baharuddin Haji Abdul Rahman, Muhammad Zuhair Zainal, & Hairul Nizam Ismail

The Influence of Parental Involvement and Teacher Support Toward Mathematics Engagement among Chinese Secondary School Students

Ahmad Fauzi Mohd Ayub, Chin Key Paan, & Tajularipin Sulaiman

The Learning and Facilitation (PdPc) of Form 4 Chemistry Using the Science, Technology, Engineering and Mathematical Approach (STEM)

Ritha Palayah & Mohamad Nasir Othman

The Othering of Animals: A Critical Discourse Analysis of a Socio-Scientific Debate among Filipino STEM Senior High School Students

Donne Jone Panizales Sodusta & Yun-Ping Ge

Parallel Session 1: 11.00am-1.00pm

Venue: EUREKA, USM

Level Ground Floor: Auditorium 3

STEM Education Issue in the Context of Gender Disparities

Nik Mariam-Jamilah Nik Lukmanulhakin, Corrienna Abdul Talib, Akilu Ismail, Marlina Ali, & Ng Khar Thoe

Green Technology Integration in Students' STEM Learning and Facilitation Activities

Shahrol Saeffy Ahmad Shatar

Explicit Instruction of Scientific Argument in Practical Work: A Feasibility Study

Irene Lue Leh Ping, Lilia Halim, & Kamisah Osman

Implementation of Blended PBL in Medical Education in Saudi Arabia Universities: Challenges and Opportunities

Amera Ahmed Abdallah Rabee, Mohd Ali Samsudin, & Azidah Abu Ziden

Effects of STEM Project '1,2,3..Newton' in Enhancing Students' Understanding of Newtonian Concepts and Inventive Thinking Skills among Secondary Students

Azila Muhammad & Salmiza Saleh

Best Practice: Collaboration on Asean Teacher Training In Stelr-STEM Education (Reflections on STEM Training and Workshop at ASEAN Level)

Edi Syahputra

Parallel Session 1: 11.00am-1.00pm

Venue: EUREKA, USM

Level 1: PIPPA Seminar Room

The Effectiveness of Electrochemistry Form 4 Manual in Improving the Understanding of Electrochemistry Form 4 Concepts of Electrochemistry (Ec) and Motivation towards Learning Chemistry

Munaratul Aini Yahaya & Salmiza Saleh

The Effects of *Hayati Eksplorasi Berfikir Aras Tinggi* (HEBAT) Module (Change In Matter) in Improving the Understanding of Matter Concepts, Higher Order Thinking Skills and Motivation among Form One Students

Nur Syazwani Rozman & Salmiza Saleh

Science Achievement among Chinese Secondary School Students with Respect to Gender, Socioeconomic Status and Parenting Styles

Nurul Nadiah Nasri & Salmiza Saleh

Project Based Learning that Promotes Innovations in Teaching Aid and Strengthening Strategies of Teaching and Learning in Science

Kumar Subramaniam @ Balasubramaniam

Using Artificial Intelligent (AI) Based Platform to Develop Science TIMSS Bank Item for Computer Adaptive Testing (CAT)

Mohd Ali Samsudin & Thodsaphorn Som Chut

Sparking STEM-preneur Thinking through engaging with STEM Project

Hartini Hashim, Mohd Norawi Ali, & Mohd Ali Shamsudin

Parallel Session 1: 11.00am-1.00pm

Venue: EUREKA, USM

Level 2: MAPITA Seminar Room

The Effects of Teaching Method Concrete-Pictorial-Abstract (CPA) to the Malaysian Community College Students' Attitude towards Geometry

Nur Alyani Mohamed & Chew Cheng Meng

Effects of Discovery Learning Incorporating Arcs Model on Year Two Pupils' Achievements in Learning Fractions

Ong Pei Wen & Chew Cheng Meng

Research on Effectiveness of "BP & PB" Technique to Improve Remedial Pupils' Skills on Addition involving Regrouping *Cheetalakchumy Balu*

The Implementation of STEM Activities and Its Effect on Student's Academic Resilience

Titiyaka Jajuri, Mohd Norawi Ali, Syed Mohamad Syed Abdullah & Shahabuddin Hashim

Effects of STEM Problem-Based-Learning on Knowledge Achievement and Attitude towards Science among Year Five Pupils on Renewable Energy

Maznah Ali & Noor Azma Abdul Rahman

Greening STEM: A Theoretical Exploration for the Malaysian Context

Aai Sheau Yean & Suzieleez Syrene Abdul Rahim

Parallel Session 2: 3.30pm-5.00pm

Venue: EUREKA, USM

Level Ground Floor: Auditorium 1 (Symposium)

Title: Teachers Design Thinking in STEM Contexts

Discussant: Gillian Kidman (Monash University)

Science: Differences in Teachers Thinking

Presenter: Dominador Mangao (SEAMEO RECSAM)

Co-authors: Gillian Kidman (Monash University), Roland Gesthuizen (Monash University),

Hazel Tan (Monash University) & Dom Mangao (SEAMEO RECSAM)

Mathematics: It Can be More Than Numeracy

Presenter: Hazel Tan (Monash University)

Co-authors: Gillian Kidman (Monash University), Roland Gesthuizen (Monash University), and

Dominador Mangao (SEAMEO RECSAM)

Technology: Knowing the Educational Purpose

Presenter: Roland Gesthuizen (Monash University)

Co-authors: Gillian Kidman (Monash University), Hazel Tan (Monash University) and

Dominador Mangao (SEAMEO RECSAM)

Parallel Session 2: 3.30pm-5.30pm

Venue: EUREKA, USM

Level Ground Floor: Auditorium 2

Application of Geogebra into Teaching and Learning of Linear and Quadratic Equations amongst Senior Secondary School Students in Fagge Local Government Area of Kano State Nigeria

Mamman, M. A & Isa, S. G.

Effects of Collaborative Learning Strategy on Performance among Low Ability Basic Science Students In Kano, Nigeria

Umar Ishaq & Shehu Aliyu

Binary Code Technique in Improving Students' Performance in Science Subject in Secondary School

Shamsidda Mohamat Nor @ Zainal

Effect of Computer Animation Model on Performance and Retention among Biology Students in Some Selected Senior Secondary Schools in Kano State, Nigeria

Saudat Shehu Bala

Mathematics and Science Achievements and Self- Efficacy: An Investigation of Primary Students in Northern Malaysia

Sharvina Gunaseelan

Framing the Pedagogical Role of Mathematics Teachers: Evidence from Pakistan

Muhammad Shakir

Parallel Session 2: 3.30pm-5.10pm

Venue: EUREKA, USM

Level Ground Floor: Auditorium 3

The Development of Pro-STEM Module in Inculcating Students' Higher Order Thinking Skills

Nurul Huda Kasim & Che Nidzam Che Ahmad

FZ-STEM Module: Need Analysis and Development

Mohd Taufek Harun & Mohd Ikhwan Hadi Yaacob

Kahoot! in Biology Classroom to Enhance Pre-University Students' Active Learning

Nor Asniza Ishak

Stimulating Scientific Minds among Early Secondary Students in Malaysia: A Pilot Study Using 'Engineering And Electronics Made Fun' Approach

Mohd Zulhakimi Ab Razak, Fazia Adyani Ahmad Fuad, Azlina Abdullah, & Mansor Mohd Noor

Modelling the Determinants of Icts Application in Internship in Technical and Vocational Education for Nigerian Higher Institutions

Babawuro Shuaibu & Andi Mallanti

Parallel Session 2: 3.30pm-5.10pm

Venue: EUREKA, USM

Level 1: PIPPA MAPITA Seminar Room

Definition of STEM Literacy and Its Importance in Education

Azman Mohd Noh & Norizan Esa

Student Teachers' Perception on 'STEM' Education in Sri Lanka

Anita Nithlavarnan

Students' Performance in Mathematics: Impact on STEM Learning

Hasni Shamsuddin, Ahmad Zamri Khairani, & Nordin Abd. Razak

The Relationship between Level of al-Quran Memorization with Achievement in Biology among Students in Ulul Albab Model School

Adilah Abdul Malik & Rabiatul-Adawiah Ahmad Rashid

Measuring Students' Attitude towards Science, Technology, Engineering and Mathematics

Ahmad Zamri Khairani & Hasni Shamsuddin

Level 2: MAPITA Seminar Room

Integration of Project-Based Learning (PjBL) Approach in STEM Education to Improve Higher Order Thinking Skills (HOTS) in Primary School Students

Noorhafizah Rasid & Nor Asniza Ishak

The Relationship of Higher Order Thinking and Learning Style towards Matriculation Students' Achievements in Electrochemistry

Faezah Mohd Noor & Nur Jahan Ahmad

Effects of Brain-Based Teaching Approach towards Science-Based Subjects Learning Needs among Technical and Vocational Students

Siti Rozaini Ahmad & Salmiza Saleh

The Impact of Designing and Developing CELIK STEM Module Towards Science Achievement

Ahmad Adnan Mohd Shukri, Che Nidzam Che Ahmad, & Norhayati Daud

Day 2: 24 January 2019 (Thursday)

Parallel Session 3: 11.00am-1.00pm

Venue: EUREKA, USM

Level Ground Floor: Auditorium 1

Gamifying A Computing Program to Encourage Student Engagement

Lim Chia Yean, Vasuky Mohanan, Neesha Jothi & Teng Wei Jian

Using an Analogy between Positive -Negative and Right-Left Hand To Calculate Time Zone

Mohd Zaki Said

Factors Affecting Critical Thinking Skills in STEM Education

Mohd Khairul Azmi Ahmad, Nurzatulshima Kamarudin, Tajularipin Sulaiman & Azrul Hazri Iantan

Inventive Thinking 21st Century Skills among Preparatory Course Science Students

Punia Turiman, Kamisah Osman, & Tengku Siti Meriam Tengku Wook

Comparative Effects of Three Instructional Strategies on Students' Achievements in Physics on the Concept Machine

Ibrahim Bello

Psychology Software Tools in Education: Creating Experiment in E-Prime to Identify Teenagers with Syntactic Specific Language Impairment

Jong Hui Ying, Rozaida Abdul Rauf Jafri, Malin Abdullah Faruque Reza, Garry Kuan Pei Ern Jason, Tye Kong Chiang

Parallel Session 3: 11.00am-1.00pm

Venue: EUREKA, USM

Level Ground Floor: Auditorium 2

STEM Education and Society (A New Board-Game-Based-Learning in Teaching Arithmetic for Young Learners – DAMAT Prospective)

Maz Jamilah Masnan, Nursalasawati Rusli & Amran Ahmed

STEM-Based Project-Based Learning across Science and Mathematics Curriculum in a Secondary School

Rohana Sedik, Rehan Suwarni Abu Bakar & Chin Chee Keong

Development of PhyKER Games and Its Effect On Students' Achievement in Science Process Skills

Norfaridatul Akmar Hasim, Mohd Mustamam Bin Abd Karim, & Nurulhuda Abd Rahman

STEM Interest And Informal Learning Opportunities in Malaysia: The Role of Non-State Sector Organisations

Aizuddin Mohamed Anuar

The Needs Analysis in Game-Based STEM Module Development for KSSM Science Teachers

Farihah Mohd Jamel, Mohd Norawi Ali & Nur Jahan Ahmad

Integrated STEM Course: A New Pedagogy for Training Pre-Service Mathematics Teachers in Sokoto State, Nigeria

Usman Galadima, Zaleha Ismail, & Norulhuda Ismail

Parallel Session 3: 11.00am-1.00pm

Venue: EUREKA, USM

Level Ground Floor: Auditorium 3

The Relationship between Student Engagement with Academic Performance among Non-Food Science Students Enrolled in Food Science Course

Rashidah Sukor, Mohd Ayub, A.F. & Nor Khaizura, Mahmud @ A. R.

Engineering Students' Program Outcome Attainment of the 21st Century Skills through Individual and Team Work

Che Maznah Mat Isa, Afifah Azmina Ahmad Amin, Hamidah Mohd Saman, Janmaizatulriah Jani, Mazidah Mukri, & Nur Kamaliah Mustaffa

STEM Education and Society Challenges Faced By Thenmaradchy Zonal Education Office, Jaffna District: An administrative Perspective

Vipulan Nadgunarajah

The Effect of Modeling Clay in Enhancing Level of Understanding in Mechanism of Dehydration in Alcohol among Matriculation Student

Mohd Shaffie Ghazali, Marina Mat Yusof, Siti Armiah Mohamed Isa, Mohd Aznul Fikri Zainol, & Nor Asniza Ishak

STEM-Based Learning Effects through Scratch Applications towards Student Attitudes and Achievements in force Topics

Suzlipah Sanusi & Mohd Ali Samsudin

Using Multi-facet Rasch Model (MFRM) Analysis to Evaluate the Performance of 21st Century Skills of the ITE Teacher Trainees in Teaching Practice for Design and Technology Subject (RBT)

Rozaini Abu Bakar & Mohd Ali Samsudin

Parallel Session 3: 11.00am-1.00pm

Venue: EUREKA, USM

Level 1: PIPPA Seminar Room

Attitudes and Behaviors on Environment among Secondary School Students

Mohamad Zamier Md Taib & Norizan Esa

Exploring Graphs of Functions with Graphing Technology

Jeyaletchumi Muthiah, Munirah Ghazali & Chew Cheng Meng

A Needs Analysis of Fred Rogers Approach in Developing STEAM Module using ASSURE Model for Preschool

Zahiroh Awang & Nooraida Yakob

Implementing STEM Biodiversity Projects for Improving Knowledge of Teaching 21st Century Skills Among Biology Teachers at Pre-University Level

Hidayatul Illah Ahmad Saad, Norizan Esa & Rabiatul Adawiyah Ahmad Rashid

Understanding the Process of Scientific Knowledge Applied Contextually

Zainun Mustafa & Nooraida Yakob

Student Teacher Readiness Towards STEM Education: A Preliminary Study

Ahmad Muslihin Ahmad & Nooraida Yakob

Parallel Session 3: 11.00am-1.00pm

Venue: EUREKA, USM

Level 2: MAPITA Seminar Room

Integrating Technology into STEM Education in the Aspects Knowledge and Skills of Primary School Teachers

Eda Rohani Che Deris, Nor Asniza Ishak & Nur Jahan Ahmad

The Importance of STEM in Special Education School for Hearing Impaired Special Needs Students

Choo Li Suan & Nooraida Yakob

The Impact of STEM Integrative Approach on Primary Pupils' Awareness in Solid Waste Management

Mohd Norawi Ali & Chuah Hong Chuan

Enhancing Student Engagement using Brain-Based-Learning Approach

Mimi Maya Badri & Salmiza Saleh

The Effectiveness of Integrating Technology in STEM Activities (Inquiry Based Learning) in Improving Content Knowledge and Promoting Interest among Primary Pupils

Kaiyathri S. Samugam & Nor Asniza Ishak

Pedagogical Belief and Assessment for Learning in Science: An Exploration of Teachers' Experiences Anchored on the Theory of Reasoned Action

Sarah Namoco & Rozniza Zaharudin

Parallel Session 4: 3.30pm-5.00pm

Venue: EUREKA, USM

Level Ground Floor: Auditorium 1

Use of Anycast And Smartphone Plickers Application in Primary School Mathematics

Azimah Abdullah

The Development of Disney's Strategy Module Based on Nlp in the Tutorial Teaching of Mathematics in Matriculation

Mohamad Tahar Mohamad Amirnudin & Salmiza Saleh

Transum Flipped Classroom for Mathematics

Loh Chee Hoo

Finger-Used-Method in Multiplication of Two Decimal Integers

Nor Hayati Abi Khallad

Level Ground Floor: Auditorium 2

Does STEM Pjbl Increase Student Achievement In Learning Physics?

Mohd Ali Samsudin & Seyedh Mahboobeh Jamali

Investigating the Effect of Integrating Technology in Engineering Problem through STEM Pedagogy in Accelerating Students' Scientific Creativity.

Sangeetha Senappan, Norizan Esa & Nor Asniza Ishak

Investigating the Effectiveness of 'MindMup' Application in Biology through STEM Pedagogy in Increasing Students' Understanding and Creativity

Zarni Asnita Zakaria & Nor Asniza Ishak

Effect of Instructional Approaches on Financial Accounting Achievement Among Secondary School Students in Gombe State, Nigeria

Umar Inuwa

Day 2: 24 January 2019 (Thursday)

Parallel Session 4: 3.30pm-5.00pm

Venue: EUREKA, USM

Level Ground Floor: Auditorium 3

Analysing Malaysian Nature Education in Preschool (Myneps) Pre And Post Assessment

Mohd Allif Abu Yazid, Suziyani Mohamed, Haryanti Mohd Affandi, Nurhafizah Abdul Musid, Nurul Eizzaty Sohimi, Farah Shafawati Mohd Taib, Abdul Halim Masnan, Faszly Rahim

Frog VLE Applications in Science Teaching in Secondary School in North Malaysia: Teacher's Perspectives

Nofaizah Ramli & Salmiza Saleh

Enhancing Students' Knowledge and Creativity towards Food Waste Management Using 'Wasted Beauty' Project Infused with 5E Model

Pavitra Krishnan & Nor Asniza Ishak

STEM Education: Enhancing HOTs Through Play Activities among Preschool Children

Norhailee Abdul Rasid & Nooraida Yakob

Level 1: Bilik Seminar PIPPA (Workshop)

Social Network Analysis Research in STEM Education: Using Facebook, YouTube and Twitter Data to Analyse the Emerging Themes in STEM Education

Shamimah Parveen Abd Rahim & Sathisha Goonasakaran

Level 2: Bilik Seminar MAPITA (Workshop)

The Hunter and Monkeys

Mohd Shukri Mohd Ali & Rohaya Ahmad