



INTERNATIONAL CONFERENCE ON
**MULTI-DISCIPLINARY
RESEARCH STUDIES
AND EDUCATION-2020**

31ST OCTOBER 2020

Virtual Conference

Organized By
Institute For Engineering Research and Publication
(IFERP)



International Conference on Multi-Disciplinary Research
Studies and Education (Virtual Conference)

(ICMDRSE-2020)

31st October, 2020

Organized By

Institute For Engineering Research and Publication (IFERP)

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IFERP-Explore

Editorial:

We cordially invite you to attend the **International Conference on Multi-Disciplinary Research Studies and Education (Virtual) (ICMDRSE-20)** on **October 31st, 2020**. The main objective of **ICMDRSE 2020** is to provide a platform for researchers, students, academicians as well as industrial professionals from all over the world to present their research results and development activities in relevant fields of Recent Challenges in Science and Technology. This conference will provide opportunities for the delegates to exchange new ideas and experience face to face, to establish business or research relationship and to find global partners for future collaboration.

These proceedings collect the up-to-date, comprehensive and worldwide state-of-art knowledge on cutting edge development of academia as well as industries. All accepted papers were subjected to strict peer-reviewing by a panel of expert referees. The papers have been selected for these proceedings because of their quality and the relevance to the conference. We hope these proceedings will not only provide the readers a broad overview of the latest research results but also will provide the readers a valuable summary and reference in these fields.

The conference is supported by many universities, research institutes and colleges. Many professors played an important role in the successful holding of the conference, so we would like to take this opportunity to express our sincere gratitude and highest respects to them. They have worked very hard in reviewing papers and making valuable suggestions for the authors to improve their work. We also would like to express our gratitude to the external reviewers, for providing extra help in there view process, and to the authors for contributing their research result to the conference.

Since August 2020, the Organizing Committees have received more than 86 manuscript papers, and the papers cover all the aspects in Science and Technology. Finally, after review, about 15 papers were included to the proceedings of **ICMDRSE -2020**.

We would like to extend our appreciation to all participants in the conference for their great contribution to the success of **ICMDRSE -2020** We would like to thank the keynote and individual speakers and all participating authors for their hard work and time. We also sincerely appreciate the work by the technical program committee and all reviewers, whose contributions made this conference possible. We would like to extend our thanks to all the referees for their constructive comments on all papers; especially, we would like to thank to organizing committee for their hard work.

Acknowledgement

IFERP is hosting the **International Conference on Multi-Disciplinary Research Studies and Education (Virtual) (ICMDRSE -2020)** this year in the month of October. The main objective of **ICMDRSE** is to grant the amazing opportunity to learn about groundbreaking developments in modern industry, talk through difficult workplace scenarios with peers who experience the same pain points and experience enormous growth and development as a professional. There will be no shortage of continuous networking opportunities and informational sessions. The sessions serve as an excellent opportunity to soak up information from widely respected experts. Connecting with fellow professionals and sharing the success stories of your firm is an excellent way to build relations and become known as a thought leader.

I express my gratitude to all my colleagues, staffs, professors, reviewers and members of organizing committee for their hearty and dedicated support to make this conference successful. I am also thankful to all our delegates for their pain staking effort to travel such a long distance to attend this conference.



Rudra Bhanu Satpathy
Chief Executive Officer
Institute for Engineering Research and Publication (IFERP)



044-42918383



Email: info@iferp.in
www.iferp.in



Girija Towers, Arumbakkam, Chennai - 600106

**International Conference on
Multi-Disciplinary Research Studies and
Education (Virtual)**

(ICMDRSE –2020)

31st October, 2020

Keynote Speakers

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PROF. DR. FELIX LING NGEE LEH

Associate Professor

Dep. of Infrastructure Geomatic Engineering

Faculty of Civil and Environmental engineering, UTHM, Malaysia

Biography

Dr Felix Ling started his career as a tutor at Kolej Universiti Teknologi Tun Hussein Onn (KUiTTHO), after graduating with First Class Honours from Universiti Teknologi Malaysia in 2001. Later in 2003, he was appointed as Lecturer in KUiTTHO after obtaining his master degree in civil engineering with majoring in Geotechnics. In 2010, he was promoted as Senior Lecturer in Universiti Tun Hussein Onn Malaysia (UTHM). He served the university for more than 10 years before pursuing his PhD degree and subsequently obtained his PhD degree in Civil Engineering in the year 2016. He is currently served as Associate Professor in UTHM. He is also actively involved in research and was appointed as a senior researcher of Research Center of Soft Soil (RECESS) since 2013 and associate researcher of ICOE-REL since 2018. His research interests are soil characterization, organic soil stabilization and numerical modelling of geotechnics. He is also actively involved in the engineering community and served as secretary of Graduate & Student Section of IEM Southern Branch in the year of 2008-2009. He is currently a Professional Technologist (Ts.) of the Malaysian Board of Technologist (MBOT).



Dr. R.Lakshmana Kumar

*Hindusthan College of Engineering and Technology,
Coimbatore,
India*

Biography

Dr R.Lakshmana Kumar is currently associated with Hindusthan College of Engineering and Technology, Coimbatore. Tamil Nadu. He is a Director-R&D (AI) for a Canadian based company (ASIQC) in Vancouver region of British Columbia, Canada. He is the Founding Member of IEEE SIG of Big Data for Cyber Security and Privacy, IEEE. He serves as a core member in the Editorial Advisor Board of Artificial Intelligence group in Cambridge Scholars Publishing- UK, Trends in Renewable Energy Journal -USA , Frontiers in Communications and Networks,-Switzerland , AI Forum(The world's leading forum for AI). He is an IEEE Brand Ambassador also a member in IEEE. He was invited as a keynote speaker for AVIS' 2020 (Asia Artificial Intelligence Virtual Summit 2020) which is the Asia's first biggest Virtual Summit on Artificial Intelligence held at Malaysia on June 2020. He is a global chapter Lead for MLCS [Machine Learning for Cyber Security]. He himself involves in research and expertise in AI and Blockchain technologies. He holds the certification in Data Science from John Hopkins University, United States. He also holds the Amazon Cloud Architect certification from Amazon Web Services. He is also an ACM distinguished speaker.

ICMDRSE -2020

International Conference on Multi-Disciplinary Research Studies and Education- (Virtual)

31st October, 2020

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Lecturer, Department of Computer and Information Sciences, Universiti Teknologi Petronas
(UTP), Malaysia

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ABSTRACTS

ICMDRSE - 2020

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Effect of Particle Size Ratio on Strength of Blended Glass Powder

Dhirendra patel, Research Scholar , Mahatma Gandhi Chitrakoot Gramodaya Vishwavidyalaya, Madhya Pradesh, Lecturer Civil Engineering Kalaniketan Polytechnic College Jabalpur

Dr.Ravikant Shrivastava, Professor, Mahatma Gandhi Chitrakoot Gramodaya Vishwavidyalaya, Madhya Pradesh

Dr.R.P.Tiwari, Professor, Rewa Engineering College Rewa

R.K.Yadav, Professor, Jabalpur Engineering College Jabalpur

Abstract:--

The presented study is related to the characterization of glass powder using SEM & EDX with particle size distribution through laser technique. In the study the effect of particle size over compressive strength is analyzed with due consideration to chemical composition of glass powder which in turn plays the crucial role in developing reaction products for competent pozzolanic behavior of the same. Results would indicate that as the particle size is decreased it have the positive impact on generation of strength.

Keywords:

Particle size, Strength, SEM, EDX.

Parametric simulation of butterfly wing under its mathematical optimal shape

Kromba Ibrahim, Biomedical Engineering Laboratory
Soulimane Sofiane, Biomedical Engineering Laboratory
Saffih Fayçal, System Design Engineering Dept

Abstract:--

This paper proposed a conception of bio-inspired butterfly micro-robot wing. The complexity of the butterfly's independent flight has always held the attention of researchers. The aerodynamic performance of the butterfly wing depend on the elasticity of the materials manufactured using a 3D printer. A geometric wing shape was modeled under COMSOL Multiphysics CAD tool, taking into consideration the biomimetic nature of this design. Mathematical equations were used to determine the instantaneous reaction of aerodynamic parameters between the different materials "PolyLactic Acid PLA, PolyDiMethylSiloxane PDMS, Acrylonitrile Butadiene Styrene ABS" and the chosen air surface. It was assumed that the wing aerodynamic performance evolves over time during simulation. The air flow was introduced (1m/s) to analyze the pressure put on the wing. The target variable is the displacement of this wing per second. The concept covered is the two-dimensional study of the wing taking into account the three previous materials and their impact on its optimal flight performance. The chosen physics is the Fluid Structure Interaction (FSI).

According to this analysis, the flexibility of the material allows a high concentration of pressure on the contour of the wing, which means that the aerodynamic parameters interact at the contour of the wing for a flexible material. On the other hand, this pressure is concentrated on the center when it comes to rigid material. To improve these performances, we mixed a flexible with a rigid material. The results were convincing considering that the pressure is almost equally distributed over most of the wing surface with a better displacement. This study allows us to identify the wing performances as function as material texture composition.

Keyterms:--

Biomimetic modeling, Butterfly wing performance, Fluid Structure Interaction, Printed material.

Managerial Performance of Fast Food Restaurant Managers in the Philippines: Basis for Capability Enhancement Program

Jessie Anne T. Demetillo, Cavite State University, Philippines

Liane Vina G. Ocampo, Cavite State University, Philippines

Rosario B. Gumban, Cavite State University, Philippines

Abstract:--

The study generally assessed the management skills, work values, and job performance of the fast-food restaurant managers in the Philippines as a basis for developing managerial capability enhancement programs. Specifically, it aims to determine the profile; the level of the management skills, work values, and job performance as assessed by the managers and of their staff; and the relationship that exists among the variables: profile and management skills, profile and work values, profile and job performance, management skills, and job performance, and work values and job performance. The results revealed that most managers ages 25 and below and with bachelor's degree; they mostly served as a manager for only five years and below; had attended five and below the number of trainings relative to their position; and have an average monthly income of P15,000 and below. Managers are excellent in management skills, work values, and job performance as assessed by themselves and their staff. Results also showed that the average monthly income was found to have a significant relationship with management skills, work values, and job performance. Further, management skills and work values are highly significant to the fast-food restaurant managers' job performance.

Index Terms

Job Performance, Management Skills, Managers, Work Values

Impact of Export and Import on 40 years Economic Growth in the Philippines

Liane Vina Gonzales Ocampo, Cavite State University, Philippines

Rosario B. Gumban, Cavite State University, Philippines

Jessie Anne T. Demetillo, Cavite State University, Philippines

Abstract:--

The Philippine economy, as a newly industrialized country, remained to be resilient and competitive enough to be one of the five growth performers in the region. As the country grows, it faces greater challenges towards its aim for development. Same way as other developing nations, the Philippines still experience a trade deficit. This situation in the economy must take into consideration seeing that the balance of trade is considered as one of the key components in measuring the relative strength of the country's economy.

This research investigates the association between export, imports, and economic growth in the Philippines. The study collected trade balance indicators and economic output for the period of 1978 to 2017. The unit root test was employed to test the presence of unit root at level and first difference. Vector Autoregression analysis was used to the relationship exist among variables. The result determined that the past value of imports have a significant impact on the Economic Output measured in terms of GDP. On the export side, the Wald test statistics showed that the previous values of export jointly could influence the Gross Domestic Output. These results provide evidence that exports and imports can influence economic growth in the Philippines.

Key words:

Economic growth, Exports, Trade Balance, Trade Deficit, Imports, Vector Autoregression.

First-principles study of Chromium passivated Graphene based Magnetic Tunnel Junction

Muzafar Gani, Department of Electronics & IT, University of Kashmir, Srinagar, Jammu and Kashmir, India

Khurshed A. Shah, Department of Physics, S.P college Campus, Cluster University Srinagar, Jammu and Kashmir, India

Shabir A. Parah, Department of Electronics & IT, University of Kashmir, Srinagar, Jammu and Kashmir, India

Abstract:--

Graphene is, one of the most promising two-dimensional material for spintronic devices, because of the weak spin-orbit interaction, which results in the tunability of electronic property and large lateral spin transport. Moreover, the half metallicity in CrO₂ and high curie temperature proves it a very good candidate for use as an electrode. In this paper, we have carried out the spin dependent transport calculations of a Magnetic Tunnel Junction consisting of CrO₂ electrodes and chromium passivated graphene as scattering region. The IV characteristics, transmission spectrum and band structure were calculated by employing density functional theory (DFT) and Non-equilibrium greens function (NEGF) formalism. The modelled device shows large value of Tunnelling Magnetoresistance and high spin injection efficiency. The transmission spectrum and the semiconductor theory has been adopted for the justification of the obtained transport characteristics. The high performance of the modelled device justifies its potential for future spintronic application.

Keywords:

Magnetic Tunnel Junction, Spin transport, Graphene, Half metal, spin filtering.

Project-based and Collaborative Learning in a software development diploma: Ideas borrowed from mainstream education

Kathiravelu Ganeshan, Otago Polytechnic

Diana Kirk, University of Auckland

Nathan Polley, Christian Heritage College

Abstract:--

Over a period of three years, at our previous institution, EDENZ Colleges, we designed, delivered and evolved a successful software development programme that featured project-based learning within a collaborative learning environment. The programme used ideas and concepts borrowed from mainstream western education and merged these with the Māori concepts of āko, waka, whanau and aspects of Kaupapa Māori. In this paper, we explore how the P3 Task Taxonomy and collaborative learning contributed to creating an engaging learning environment.

Keywords:

project-based learning, collaborative learning, software development, P3 Task Taxonomy, mainstream education.

Exploring what Secondary class students Think of Science Particularly Their School Science

Neha Yadav, Research Scholar, Department of Education, University of Delhi

Abstract:--

This study explores the perception of students of secondary classes (9th and 10th) towards science in general and towards their school science in particular. It focuses on areas such as: perception towards science, application of science in real life, characters associated with science, ability to become a scientist, liking/disliking towards science topics, reasons for choice of stream in 11th. The study was conducted in two government schools. 70 participants were given an open ended questionnaire to fill in their responses. The data was then qualitatively analysed to answer the research questions.

Index Terms

Students, Perception, Science Subject, Science Aspirations

Generation of Test Cases using sub-activity in Activity Diagram

Pariksha Jain, Rajasthan Technical University

Dinesh Soni, Rajasthan Technical University

Abstract:--

Testing in software has a fundamental role-to-play in the system design. Under this, model-testing is more economical and well-planned than manual testing regarding resources, cost, time, and labor work. The creation of test cases makes a significant contribution in the testing phase which is defined in terms of quality of the software and detection of faults present in the software. For producing the test cases of distinct scenarios, model based testing uses a UML diagram. In this paper, the generation of test cases by considering an activity diagram having sub-activity is represented. In our model, firstly construct UML activity diagram using Enterprise Architect tool. Then, export the XMI from this tool so that the detailed information is extracted from this XMI. From this information, an activity-graph is created. After that, DFS algorithm is performed for creating the test scenarios. It considers all-path and condition coverage criteria and also detects different types of faults.

Three-weight and five-weight linear codes over finite fields

Pavan Kumar, Department of Mathematics, Aligarh Muslim University, Aligarh-202002, India

Abstract:--

Recently, linear codes constructed from defining sets have been studied extensively. For an odd prime p , let Tr_e^m be the trace function from F_{p^m} onto F_{p^e} , where e is a divisor of m . In this paper, for the defining set $D = \{x \in F_{p^m}^* : \text{Tr}_e^m(x^2 + x) = 0\} = \{d_1, d_2, \dots, d_n\}$ (say), we define a p^e -ary linear code C_D by

$$C_D = \{c_x = (\text{Tr}_e^m(xd_1), \text{Tr}_e^m(xd_2), \dots, \text{Tr}_e^m(xd_n)) : x \in F_{p^m}\}$$

and present three-weight and five-weight linear codes with their weight distributions. We show that each nonzero codeword of C_D is minimal for $\frac{m}{e} \geq 5$ and, thus, such codes are applicable in secret sharing schemes.

Direct Self control-SVPWM using imaginary reference Phase Voltages for ISG Controller

P V V Raghava Sharma, MVSR Engineering College

Y L N Rao, MVSR Engineering College

V V Satyanarayana Akula, MVSR Engineering College

Abstract:--

This paper describes about (DSC-SVPWM) for integrated starter generator controller. Direct self control (or) Direct torque control of induction machine gained prominence among the existing field prominence oriented controller. Though Direct self control technique moving high torque ripples can be overcome by using Direct Self control and SVPWM technique, thereby reducing THD (Total harmonic distortion) in output voltage level. This system is based on an Induction machine directly mounted on the engine crank shaft thereby avoiding starter during initial operation. DSC with SVPWM helps during the operation of motoring and generating modes, only one at a time. Direct Self Control with SVPWM technique eliminates two machines used for IC engine. One for starting and other for charging Battery. The above two machines can be replaced by single Induction Machine with DSC-SVPWM Motor. In order to Validate results, above technique is simulated in Matlab/ Simulink.

Keywords:

Direct self control, space vector pulse width modulation, field oriented control and IC engine

Common fixed point theorems for the mappings satisfying the property E.A. in G-metric spaces

Reena, K. J. Department of Mathematics, Starex University, Gurugram, Harayana, India.

Alok Gupta, Department of Mathematics, Starex University, Gurugram, Harayana, India.

Abstract:--

Mustafa and Sims introduced the concept of G-metric spaces in the year 2004 as a generalization of the metric spaces. After that, many authors studied fixed and common fixed point in generalized metric space. These results provide the basis for carrying out analysis in G-metric spaces, in particular for the development of G-metric fixed point theory for mappings satisfying a variety of contractive type conditions. The main aim of this paper is to obtain some new common fixed point theorems under some contractive conditions. We utilize weak compatibility to obtain these results.

Keywords:

common fixed point, contractive conditions, G- metric space.

PROPERTY MANAGEMENT SERVICES OF DIFFERENT VILLAGE CLUBHOUSES: BASIS FOR AN IMPROVED QUALITY MODEL

Rosario B. Gumban, Cavite State University
Jessie Anne T. Demetillo, Cavite State University
Liane Vina G. Ocampo, Cavite State University

Abstract:--

The study aims to assess the property management services of Village Clubhouses as the basis for an improved quality management model. It sought to establish the profile of the customers that will represent the sample in the study, that helped identify the level of perception and compare the results to the level of expectation and the gaps of service quality using the SERVQUAL framework. The study determined the significant difference between the level of expectation and level of perception of service quality, respectively.

The result showed that the level of perception was high and that expectations were not met after the service have been experienced. The levels of perception vary based on their interest, the number of usages, and the facility being used; and the level of perception changes over time. The current findings call for emergent attention from the property management services company to take appropriate service performance and physical resource structure and monitor such to improve service quality to customers and employee performance.

Index Terms—

Property management, quality management, service quality, Village Clubhouses.

Vocabulary learning in English as a Second Language

Sruti Agarwal, Ph. D. Scholar, Department of Education, University of Delhi

Abstract:--

Vocabulary is fundamental to language proficiency and vitally important to the language learner. Comprehending a text in either one's own language or a second language is not possible without understanding the text's vocabulary. This paper intends to capture the various theoretical concerns and instructional implications inherent in the field of vocabulary learning and teaching in a second language. The paper begins by exploring the importance of role of vocabulary in language learning especially in connection with a second language. The next section deals various dimensions of word knowledge. The subsequent section problematizes the connection between vocabulary and comprehension. Finally, issues associated with vocabulary instruction (type of instruction, choice of vocabulary for instruction) are outlined and its implications for an ESL classroom in Indian context is considered.

Keywords:

Vocabulary learning, Vocabulary learning in ESL, Comprehension, Type of vocabulary instruction, ESL Vocabulary learning in India

DCVS design and analysis of the LFSR using feedback polynomial function for its low-power and reduced area overhead

Vishnupriya Shivakumar, Faculty of Engineering, Multimedia University, 63100, Jalan Multimedia, Cyberjaya, Selangor, Malaysia.

C. Senthilpari, Faculty of Engineering, Multimedia University, 63100, Jalan Multimedia, Cyberjaya, Selangor, Malaysia.

Zubaida Yusoff, Faculty of Engineering, Multimedia University, 63100, Jalan Multimedia, Cyberjaya, Selangor, Malaysia.

Abstract:--

Linear Feedback shift register (LFSR) used as a pseudo-random pattern generator in the BIST designs. Differential Cascode Voltage Switch (DCVS) is the well-known high-speed TTL logic technique. Since it has complementary outputs with a reduced number of transistor designs for generating the maximum length of pseudo-random patterns. Also, it constructs the circuits with robust and reliable performance in digital designs. The objective of this paper is to design the proposed LFSR using the feedback polynomial function rather than the conventional bit-sliced function. The two DCVS strategies for the feedback polynomial function proposed are static and dynamic. The simulation results of LFSR has done, using the pyxis 130-nm IC design tool in the Mentor Graphics platform. The results demonstrated the low power dissipation in the circuits at various conditions of voltage levels. The high-speed DCVS designs of the proposed LFSR used fewer transistors with the optimistic less power dissipation. The static LFSR achieved 5.61 μW and dynamic LFSR achieved 11.67 μW at the chip voltage of 1.2 V. The layout generated in the IC station for the respective DCVS design shows that it occupied less area overhead.

Keywords:

Differential Cascode Voltage Switch (DCVS), Linear Feedback Shift Register (LFSR), Built-in Self-Test (BIST).

Microstrip Spiral Resonator Bandpass Filter with Defected Ground Structure (DGS) for sub-6 GHz band 5G Communication Systems

Zahid A. Bhat, University of Kashmir, Srinagar, India

Javaid A. Shiekh, University of Kashmir, Srinagar, India

Shareef D. Khan, Government Degree College Handwara, J&K, India

Abstract:--

This paper presents the design and simulation of a compact bandpass filter (BPF) for sub-6 GHz band using defected ground structure. The filter is realized using the microstrip spiral resonator at top of the substrate with a dumbbell cut defected ground structure (DGS) at the ground plane. This filter results in the insertion loss of 0.89 dB and return loss better than 29.46 dB. The filter inhabits an area of 11×31.1 mm². This filter is designed in HFSS simulator by using RT/Duroid 5880 substrate having dielectric constant of 2.2 and loss tangent of 0.0009. The proposed bandpass filter for sub-6 GHz band performs well with reference to insertions loss, return loss and compact size.

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