



Conference Proceedings

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Preface:

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KEYNOTE SPEAKER



Dr. Samuel Ogbeibu

Lecturer, Management, Curtin University, Malaysia

Topic: Inspiring Team Creativity in the Context of Technological Turbulence

Dr. Samuel Ogbeibu is a lecturer of Management at Curtin University, Malaysia. He holds a Doctor of Philosophy (PhD) Degree from the Universiti Tunku Abdul Rahman (UTAR), Malaysia, and a Master of Business Administration Degree from the University of Wales (Prifysgol Cymru), Cardiff, UK. He is a winner of the 2019 Emerald Literati Awards for highly commended paper. Active lead (Department of Management- Curtin University, Malaysia) for the Sarawak Oil and Gas Innovation Centre. He is an international advisory and review board Member for the Market Forces Journal. A reviewer panel Member for the Journal of Business Research, the Higher Education, Skills and Work-Based Learning Journal, Scientia Iranica – International Journal of Science and Technology and Associate Member of the Institute of Strategic Management, Nigeria.

KEYNOTE SPEAKER



Mohd Faisal Bin Hushim

Automotive & Combustion Synergies Group (ACSG), Faculty of Engineering Technology, Universiti Tun Hussein Onn, Malaysia

Topic: Current and future trends in automotive sectors

Ing. Ts. Dr. Mohd Faisal Hushim, an SAE International member, received his bachelor's degree in Mechanical Engineering with honours in 2008. He then completed his Ph.D. in Mechanical Engineering (Automotive Engineering) in 2013. Currently, he serves as a lecturer of the automotive program at the Universiti Tun Hussein Onn Malaysia.

Ing. Faisal is a member of several national and international professional bodies. He is one of the chief advisors for World Association for Scientific Research and Technical Innovation (WASRTI). He also has been appointed as an editorial board member for several international professional committees. He is actively doing research under Automotive & Combustion Synergies Group (ACSG). His main research interests are focused on fuelling system, automotive performance characteristics, small gasoline technologies, and renewable energy. On the basis of his expertise, he has been invited to act as speaker and reviewer for national and international journals as well as conferences. He is an active reviewer for Journal of Automobile Engineering and SAE International.

His research has resulted in several technical articles published in relevant international journals and conference proceedings. He has received an award of excellence honored by Global Research & Development Services (GRDS) in 2017. The findings of his research have been acknowledged by several professional bodies and committees, allowing him to win awards in several technical expos and exhibitions: Silver Award at the 14th Industrial Art and Technology Exhibition (INATEX 2012), and two awards (Gold Award and Best Award) at the Malaysia Technology Expo (MTE 2013). His research products have been patented by Malaysia Patent since 2013. He has advised several companies in various industries and also contributed in curriculum development for several institution of higher learning since 2012.

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PRESENTERS



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29051

Determination of Antioxidant Vitamins and Chemical Properties of Monodora Myristica Seeds and Fruits (Orchid Tree)

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Abstract

Palm oil (PO) and palm kernel oil (PKO) have a lot of nutritional benefit, industrial purpose and are good source of vitamins which may help in protection against oxidative damage. In the present study, antioxidant vitamins and chemical properties of two varieties of oils were determined. Vitamins were analyzed using spectrophotometry and chemical properties were analyzed using Standard analytical procedure. Results for Vitamins A, E & K analyzed in PKO were (478.33mg/dl, 48.73mg/dl, & 11.18mg/dl), whilst for vitamins A, E & K measured in PO were (496.02mg/dl, 48.64mg/dl & 1.63mg/dl). Vitamins content between the two oils have no significant difference at $p < 0.05$. However, values recorded for free fatty acids corresponded to the acid values; palm kernel oil was higher compared to palm oil, both oils had low peroxide values; PKO had the highest iodine value as compared to PO while Saponification values for the two oils were greater than 100, thus indicating that the oils can be used for making soap. The vitamins and chemical properties of PO determined are comparable to those of PKO and that the seed oils are not inferior to other edible oils used for cooking. **Keyword: Antioxidant Vitamins Peroxide Values Iodine Value Saponification Values Palm Oil and Palm Kernel Oil**



Dr. Chitra Kiran
ERCICSTR1929052

Automated Data Acquisition and Monitoring System for Aquaponics and Hydroponics

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Abstract

Automated data acquisition and monitoring system is used to acquire the data and monitor the data for proper growth of fishes, plants and for proper bacterial action. Parameters such as temperature,

pH, dissolved oxygen, light, conductivity and fish feed are monitored. Sensors are used for measuring these parameters. These sensors are connected to Arduino and programmed to acquire the data and this data is displayed on the screen. If there is any variation, the system is monitored and brought to steady state. This method is an integrated system to produce plants and fishes in organic way. Fish are raised in a tank. Fish eat food and release metabolites (ammonia) containing nitrogen compounds into the water. Bacteria convert fish waste into accessible nutrients for plants. Filtered water is returned to the fish tank. This process of nutrient removal cleans the water, preventing the water from becoming toxic with harmful forms of nitrogen (ammonia and nitrite), and allows the fish, plants and bacteria to thrive symbiotically in an ecosystem. Thus, all the organisms are integrated together to create a healthy growing environment for one another, provided that the system is properly balanced.

NurYazdani
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Pre-Saturated CFRP Laminate Strengthening of Concrete Compression Members

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Abstract

Carbon fiber reinforced polymer (CFRP) external strengthening of deteriorated or damaged concrete compression members is gaining increasing popularity due to time and labor savings, strength and confinement gain, and long-term durability. Pre-saturated FRP (PS-CFRP) is a recent innovation where the epoxy resin glue is pre-impregnated into the FRP fabric, as opposed to the dry regular CFRP where the epoxy has to be separately applied on the concrete substrate. This study experimentally evaluated scaled-model concrete compression members externally strengthened with PS-CFRP and R-CFRP laminates. Multiple CFRP layers and the sample aspect ratio variations were considered. The samples were tested under increasing axial loading until failure. PS-CFRP application was fast with some workability issues in the limited usage timeframe. This laminate was found to be a viable product for axial concrete member strengthening, being more effective than the R-CFRP in increasing the axial capacity. However, in both cases, the capacity increase was in the range of 59% to 132% for the shorter aspect ratios. CFRP rupture mode aided in obtaining larger failure loads than debonding or delamination type failure. Theoretical predictive equations from ACI 440 (2017) underestimated the axial capacities by an average of 38% in most cases. The predictive difference was larger for PS-CFRP samples than the R-CFRP samples.

Keywords: CFRP, Pre-Saturated CFRP, Concrete Strengthening, Axial Capacity, Concrete Columns

Above Ground Biomass and Carbon Stock Estimation in Wassaniya Forest Reserve of Sokoto State Northern Nigeria

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	<p style="text-align: center;">D. P. Gwimmi Department of Forestry and Fisheries, Faculty of Agriculture, Kebbi State University of Science and Technology, PMB 1144, Aliero. Nigeria</p> <p style="text-align: center;">A.S. Ambursa Department of Forestry and Fisheries, Faculty of Agriculture, Kebbi State University of Science and Technology, PMB 1144, Aliero. Nigeria</p> <p style="text-align: center;">Mansur M. A Department of Forestry and Fisheries, Faculty of Agriculture, Kebbi State University of Science and Technology, PMB 1144, Aliero. Nigeria</p> <p style="text-align: center;">ABSTRACT</p> <p>A Point Centre Quarter (PCQ) method was used to demarcate 123 sampled plots measuring 30m x 30m at Wassaniya forest reserve in Sokoto state northern Nigeria as described by (Mueller-Dombois & Eilenberg (1974). Eight different vegetation types were identified based on tree species composition. Using a stratified sampling method, the raw data on DBH, TH, NT was collected from the field from ground truth campaign and was used together with WD from FAO data base (Zanne et al., 2009) to estimate the ABG and C for each tree species from the study site. A cumulative 1,364 individuals were identified, which falls in 46 species and nineteen families all of which their ABG and C stock was estimated.</p> <p>Keywords: Biomass, Carbon-Stock, Estimation, Forest, Reserve, and Wassaniya</p>
<p>Umar 1. ERCICSTR1929055</p>	<p style="text-align: center;">Umar 1. Department of Forestry and Fisheries, University of Science and Technology Aliero, Kebbi State</p> <p style="text-align: center;">Atiku M. College of Agriculture and Animal Science Bakura, Zamfara State</p> <p style="text-align: center;">Gwimmi D.P.</p> <p style="text-align: center;">Abstract</p> <p>Eight local government areas in Sokoto East senatorial district being the areas that are prone to the effects of climate change were purposively selected. Proportionate sampling was employed to select the villages. A total of two hundred and twenty three (223) questionnaires were administered. The data collected were subjected to descriptive statistical analysis (frequency and percentages) to analyze socio-economic characteristics of the farmers. The result indicated significant impact of climate change on livelihood such that 5.7% of people lost their lives due to flood, 18.3% of livestock were destroyed due to flood and 22.7% of the respondents agreed that livestock were destroyed due to harsh weather. 43.9% of the respondents also indicated that farm produce were invaded by birds (quelea), 40.8% showed that deforestation was the major cause of climate change, 25.1% agreed that over population was responsible. In terms of adaptation strategies, majority (52.6%) of the farmers manipulated time of planting (planting date) by way of proper timing of their farming activities to guard against rainfall failure during the growing season among others. The research finally identified some of the problems confronting the farmers in controlling climate change among are include poor financial position to acquire modern facilities as one of the major constrains to climate change, others (31.6%) pointed that lack of improved seeds and seedlings, while 1.5% attributed inaccessibility to irrigation farming. It is recommended that farmers need to be sensitized on the importance of afforestation programme to mitigate climate change.</p> <p>Keywords: Perception, Impact, Climate Change, Climate Variables</p>
<p>Gwimmi, D. P ERCICSTR1929058</p>	<p style="text-align: center;">The Role of Agroforestry for Climate Change Adaptation in Wamakko Local Government Area, Sokoto State, Nigeria</p> <p style="text-align: center;">Gwimmi, D. P Kebbi State University of Science and Technology, Aliero, Department of Forestry and Fisheries</p> <p style="text-align: center;">Umar, I</p>

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Abstract

The study assessed agroforestry for climate change adaptation in Wamakko Local Government area of Sokoto State. Four (4) districts were purposively selected for the study base on the dominance of agroforestry practices in the study areas. Two villages were randomly selected from each of the selected districts. From each village, 30 farmers were conveniently selected given a total sample size of 240 respondents. Structured questionnaire were administered, retrieved and analysed. Data were analyzed using descriptive and inferential (chi-square) statistics. Results of the study indicated that, majority (70.8%) of the farmers were within the age bracket of 15 to 30 years and 78.3 percent were married and they had attended at least one form of formal education or the other. Furthermore, 79 percent source information about climate change from family and friends, but only 4.2 percent got their information about climate change from internet and newspaper. In addition, 52.1 percent stated that high temperature was the main climate change experience they had. Majority with weighted means score (wms=3.87) of the farmers stated that dispersed tree on cropland was highly practiced. The results also revealed that age, marital status, family size, primary occupation, and farming experience were not significantly related with the idea of agroforestry. However educational status and land size was found to relate with agroforestry as a tool for climate change. To encourage agroforestry practice, incentives through the distribution of improved tree seedlings would assist greatly.

Keywords: Agroforestry, ClimateChange, Adaptation

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Assesment of Calcium and Iron Levels in Selected Fruits and Vegetables Available in Kano State, Northern Nigeria

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ABSTRACT

Mineral elements are of vital importance to both plants and animals including humans which are required in large or small quantities for a variety of different functions. The present study was conducted to determine the moisture contents and concentration levels of Calcium (Ca²⁺) and Iron (Fe²⁺) in three different fruits and vegetables widely consumed in Nigeria (namely; Mango, Pine-apple, Watermelon, Cabbage, Tomato and Spinach) which were obtained from the Yan-kaba market of Kano City. In each case, Atomic Absorption Spectrophotometry was used for the experimental analysis. Based on the results obtained, the moisture contents of the samples investigated showed that watermelon had the highest mean moisture content of 95.1% and spinach possessed the least moisture content of 63.7 %. The highest concentration of Calcium was recorded in Spinach (15.10 mg/L), and the least concentration was recorded in cabbage (4.20 mg/L). The highest concentration of Iron was recorded in pineapple (2.20 mg/L), and the least concentration was found in mango (0.17 mg/L). Therefore, comparing the mineral contents revealed in this research with the Recommended Dietary

	<p>Allowances (RDAs) limits, the results showed that regular consumption of such fruits and vegetables is essential for bone and immune system development, respectively. Keywords: Calcium, Iron, Fruits, Vegetables, Moisture Contents</p>
<p>Oyedele, K. Festus ERICSTR1929060</p>	<p>Soil Liquefaction Potential Study Along Some Coastal Areas of Lagos State, Nigeria Using Integrated Methods</p> <p style="text-align: center;">Oyedele, K. Festus Department of Geosciences, University of Lagos, Nigeria</p> <p style="text-align: center;">Oladunjoye, H. Titilope Department of Physics, OlabisiOnabanjo University, Ago-Iwoye, Ogun State, Nigeria</p> <p style="text-align: center;">Abstract</p> <p>Perpetual collapse of engineering structures in the coastal part of Lagos, Nigeria, has become a menace that seems to defy all solutions probably because of wrong approach to unravel the real cause of the problem. Several authors have attributed this incidence to poor supervision, inferior construction materials, presence of clay/peat and bad design. Customarily, sand is taken to be competent engineering material prior to the liquefaction phenomenon that occurred simultaneously in California (USA) and Nagata Japan) where sandy soil lose its bearing capacity due to sudden earth shaken. The primary aim was to delineate probable areas that were prone to induced seismicity. Multi-channel analysis of surface waves (MASW), Cone penetration test (CPT) and Standard penetration test (SPT) were employed to study the subsurface geology conditions of the area. The MASW of seismic method were used to generate the shear wave velocity (V_s) of the near surface soil while the CPT and SPT were employed to infer the penetration resistance and the blow count in the assessment of the stress-based liquefaction potential of these soils respectively. Seismic imager and liquefaction assessment software (known as Cliq) were used to process both the MASW and CPT data respectively. The values of shear wave velocity generated for most sands in the study areas range from 120m/s -200m/s. These values fell within potentially liquefiable sands. From the CPT results, 41.67% of Ikoyi data showed a very high risk to liquefaction while 37% of Badore data indicated severe liquefaction potential. The factors of safety (F.S) against liquefaction potential obtained from the plot of cyclic stress ratio (CSR) against s-wave velocity (V_s) was less than 1. This study has shown the presence of liquefiable sands within the study areas. It has significantly created awareness for inhabitants in the wetland areas of Lagos against liquefaction occurrence. Keywords: Coastal, Seismic Imager, Liquefaction, Penetration Resistance</p>
<p>Samayaraj Murali M ERICSTR1929062</p>	<p>Future Generation Optical Network for Wired and Wireless Networks based on OFDM using a Comb Source</p> <p style="text-align: center;">M.SamayarajMuraliKishanlal Associate Professor, Electronics and Communication Engineering, St. Joseph's Institute of Technology, Anna University, Chennai, India</p> <p style="text-align: center;">Dr. A. Jawahar Professor, SSN College of Engineering, Chennai, India</p> <p style="text-align: center;">Abstract</p> <p>In this study it is focused to design an architecture for the future optical networks based on PON (Passive Optical Network) called as FGON (Future Generation Optical Network). The FGON improves the efficiency and reliability of optical networks in providing a seamless data transmission network by integrating the three core concepts namely WDM, PON and OFDM. The proposed network also supports ROF (radio over fiber) for extended coverage of optical signals through wireless in unfavorable domains. In the FGON the input signals are given using a unique technique of creating a dense signals using WDM by creating a uniform comb like structure by using a dual arm Mach Zender Modulator based circuit whose output has 51 flat comb structures and then the modulation technique of OFDM is used for enabling the WDM-OFDM-PON. Both (AM and MZM) modulators driven by the same RF frequency of 30 GHz and proper DC biasing is given for MZM to get very flat spectral carriers. The OFCS generated by this method can be used in WDM-PON system which can serve large number of users. Each carrier out of 51 spectral lines is capable of supporting greater than 10 Gbps Quadrature Amplitude Modulation based data with the help of Orthogonal Frequency Division</p>

Multiplexing (OFDM) subcarriers. We study the performance of the signals generated by the comb structure in a ROF based OFDM-PON simulation network the various parameters such as the received signal strength FGON network, BER (Bit Error Rate) are noted and analyzed, and the received signals propagation characteristics of the FGON is noted which will be suitable for next generation optical access.

The main aim of the proposal is to enhance overall capacity of the passive optical network, by increasing Wavelength Division Multiplexing (WDM) channels. We demonstrate a technique to generate Optical Flat comb spectrum (OFCS) with the help of Amplitude modulator (AM) and Single Drive Mach Zehnder Modulator (SDMZM). The OFCS generated through this technique will have 51 spectral lines with very less power difference between the them. Both (AM and MZM) modulators driven by the same RF frequency of 30 GHz and proper DC biasing is given for MZM to get very flat spectral carriers. The OFCS generated by this method can be used in WDM-PON system which can serve large number of users. Each carrier out of 51 spectral lines is capable of supporting greater than 10 Gbps Quadrature Amplitude Modulation based data with the help of Orthogonal Frequency Division Multiplexing (OFDM) subcarriers.



Haji M. SHOAIB
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ERCICSTR1929064

Characterization of Curcuma Zedoaria Root Extract for Bioactive Phytochemicals and its Assessment for Multiple Skin Care Potentials: A Non-Invasive Approach using Advanced Imaging and Bioengineering Methods

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ABSTARCT

BACKGROUND: Numerous plants, because of being rich source of antioxidants including flavonoids and polyphenols, have been used in folk medicine but they have infrequently been used topically to combat skin damaging conditions. Currently, there is no study reporting the cosmeceutical beneficial effects of gellified emulsion system of Curcuma zedoaria (CZ) root extract in healthy humans. The current study was an active endeavor to characterize Curcuma zedoaria root extract and to probe skin care effects of its emulgel for reviving and improving facial skin properties. **METHODS:** Initially Curcuma zedoaria root extract was evaluated for secondary metabolites, phenolic and flavonoids contents; antioxidant and tyrosinase inhibition activities. After developing CZ extract emulgel system, its in-vitro sunscreen factor was determined. In-vivo performance of test emulgel was evaluated for 12 weeks in thirteen healthy humans using single-blinded, placebo-controlled and split-faced trial. Non-invasive bioengineering and advanced imaging techniques were used for clinical evaluation. **RESULTS:** The experiment showed that Curcuma zedoaria (CZ) root extract has valuable secondary metabolites; noteworthy amount of phenolic and flavonoid compounds; and eminent antioxidant and anti-tyrosinase potential. The prepared CZ emulgel manifested significant improvement ($p < 0.05$) associated with skin parameters including erythema, melanin, hydration, sebum and facial pores. **CONCLUSIONS:** Curcuma zedoaria root extract emulgel, being an imperative strategy for improvisation of skin damaging conditions, proved to have therapeutic potential in cosmetic field. **Keywords:** Curcuma Zedoaria; Single-Blind Method; Non-Invasive Bioengineering Techniques; Skin Care

Fatima Rasool
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Development and Characterization of creams containing Zinc Oxide and Beta vulgaris extract

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Abstract

Objective: The aim of the study was to prepare a stable cream (w/o) containing zinc oxide and beta vulgaris leaves as major photoprotective agents.

Methodology: Three stable water in oil creams (F1, F2 and F3) were prepared. The cream F1 contained 10 % zinc oxide while the cream F2 and F3 contained 4% and 8% Beta vulgaris leaves extract in combination with 10% zinc oxide. Antioxidant activity of Beta vulgaris leaves and pulp extract were determined by DPPH method. In vitro sun protection factor of these formulations was determined by UV-spectrophotometry. These formulations were kept at different temperatures i.e. at 8°C, 25°C, 40°C, 40°C+75% RH and 50°C for further evaluation. During the study period of 90 days, creams were valuated for phase separation, spreadability, pH, SPF and viscosity. Two-Way ANOVNA and LSD were applied for statistical analysis of the study tests performed using 95% confidence interval.

Results: Antioxidant activity of Beta vulgaris leaves and pulp extract were 89.3% and 82.3% respectively. During study period, no significant changes were observed in color, liquefaction and phase separation. SPF of formulations F1, F2 and F3 were 23.28, 32.74 and 34.79 respectively which decrease with the function of time and temperature. Two-Way ANOVA test showed Significant results with a level of significance ($\alpha=0.05$) for pH parameter, spreadability and Sun Protection Factor. Rheological analysis showed pseudoplastic behavior upon continuous shear stress and non-Newtonian b behavior

Conclusion: The study showed that the stable creams containing single and combination of photoprotective agents is formulated. Moreover, use of herbal extract can benefit the formulation when used upto a certain concentration.

Keywords: UV Rays, SPF (Sun Protection Factor), Zinc Oxide, Beta Vulgaris, ROS (Reactive Oxygen Species), Skin Cancer, Spectrophotometer, Photoprotection

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Impact of Immobilized Stereospermum-Kunthianum Plant Stem-Bark as Natural Coagulant for Treatment of Waste Water

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Abstract

The high cost of treated water makes most people in the rural communities resort to drinking water from sources of low quality exposing them to water borne diseases. It is in this regard that this research was carried out to confirm the effectiveness of using Immobilized Stereospermumkunthianum stem-bark for water treatment/purification which is a plant commonly found in most rural communities of Biu in Borno state, Nigeria. The plant stem-bark was immobilized by entrapping or caging the biomass within a polymeric matrix of sodium alginate and calcium chloride solution to obtaine immobilized Stereospermumkunthianum (IMSB). The precipitated blend solid was dried at room temperature. Coagulation was done by using loading doses of 2g, 4g, 6g, 8g, and 10g of dried IMSB in a beaker containing 500ml each. A control (Beaker of water without IMSB was also included). Turbidity, Conductivity, pH and antimicrobial activities were determined for all the various doses. The turbidity value of the treated water using IMSB ranges from Log100.30 to Log101.36 while conductivity value ranges from Log102.29 to Log102.72us/cm and the pH values for the treated water was 7.2 to 7.8. All values obtained for treatment using IMSB gave values that are accepted according to World Health Organization (WHO) guideline for safe drinking water. The crude extract of the plant exhibit considerable level of inhibition against all test organisms. The result obtained from the use of immobilized Stereospermumkunthianum as coagulating agent show significant reduction of turbidity and conductivity, pleasant taste of water, no alteration in the pH value of treated water and inhibit the growth of bacteria.

Keywords: Stereospermum-Kunthianum, Immobilization, Water, Coagulation, Antimicrobial

<p>Tanziela ERCICSTR1929070</p>	<p>Cancer-Exocytosed Exosomes Loaded with Silver Nanoclusters are Efficient Drug Carriers for Cancer Chemotherapy</p> <p>Tanziela State Key laboratory of bioelectronics, School of biological sciences and biomedical engineering, Southeast University, Nanjing, China</p> <p>Abstract Drug resistance remains one of the major hurdles to the effective cancer chemotherapy. The recently emerged field of nanotechnology holds great promise for effective and target specific conveyance of therapeutic tools to malignant site. Exosomes have recently come into focus as drug delivery nanocarriers as they are nano-sized, biocompatible and can cross blood brain barriers (BBB). Exosomes originate from cells and can be separated from body fluids or medium of cultured cells. Here, we develop a biocompatible exosome based DOX loaded silver nanoclusters exocytosed by glioma cells (DOX@AgNCs-ExoU87) for overcoming drug resistance in cancer chemotherapy. Exosomes generated by exocytosis of in situ biosynthesized DOX@AgNCs from cancer cells were collected from cell culture medium by Ultracentrifugation and characterized their size, and shape by TEM, elemental characterization by EDS, drug release, intracellular ROS production and in vitro and in vivo antitumor efficiency. Cytotoxicity was determined by MTT assay. (DOX@AgNCs-ExoU87) with ability of bioactive transportation are sphere-shaped with size of 30-150 nm. In addition, the enhanced rate of drug release under acidic environment, DOX@AgNCs-ExoU87 independent of their source, possess significant increased cellular uptake of DOX as compared to free DOX and DOX@AgNCs and cytotoxicity involved ROS moderated DNA damage in bulk cancer cells and have no activity on healthy cells. In vivo studies reveal enhanced accumulation of DOX@AgNCs-ExoU87 in tumor, escaped from blood vessels and penetration into deep root of tumor tissues following intravenous inoculation which led to overcoming the drug resistance in cancer cells without off-site effects of DOX. These results prove the perception for the use of drug and nanoclusters conjugated exosomes exocytosed from tumor cells as a promising drug carrier for competent cancer chemotherapy.</p> <p>Keywords: Exosomes, Drug Delivery, Glioma, Nanoclusters, DOX, Chemotherapy</p>
 <p>Rami Ahmed Elhashmi Idris ERCICSTR1929073</p>	<p>The Impact of Social Media Applications on Students Performance in Private Universities in Malaysia: IUKL Case Study</p> <p>Rami Ahmed Elhashmi Idris Faculty of Information Technology, Infrastructure University Kuala Lumpur (IUKL), Kuala Lumpur, Malaysia</p> <p>Abstract Online social networking sites have changed the way people interact and communicate. Most students who are members of these online networking sites spend numerous hours on these sites at the expense of study time. This research paper looked at the impact of online social networking sites on academic performance among the students of (IUKL) University and tries to investigate that impact by using certain model and different factors to get the effective results. The present study shows (87.1%) of the respondents use social media to share files and sources related to learning using WhatsApp. The study recommends that students should verify the facts they gather before posting them in social media. They should verify information with a source instead of posting a correction or retraction afterward.</p> <p>Keywords: Effects, Online Social Networks (OSN), Academic Performance, Students, Private Universities</p>
 <p>SittieAlmahar H.A. Laut</p>	<p>Antimicrobial Property of Crude Leaf Extracts of Artocarpusodoratissimus (“MARANG”) and Sandoricumkoetjape (“COTTON FRUIT”) AGAINST Saccharomyces cerevisiae AND Bacillus subtilis</p> <p>Abdulkhaliq M. Arani Affiliation with Philippine Science High School-Central Mindanao Campus, Balo-i, Philippines</p> <p>SittieAlmahar H.A. Laut Affiliation with Philippine Science High School-Central Mindanao Campus, Balo-i, Philippines</p> <p>Abstract</p>

ERCICSTR1929076

Pathogenic microorganisms are developing resistance against antibiotics deeming it useless against them. To resolve the problem of drug resistance, new antimicrobial agents, which are effective against resistant pathogenic microorganisms, are needed. In this study, the antimicrobial property of the crude ethanolic leaf extracts of *Artocarpus odoratissimus* (“marang”) and *Sandoricum koetjape* (“cotton fruit”) were separately tested against *Bacillus subtilis* and *Saccharomyces cerevisiae* using paper disc diffusion technique. The crude ethanolic leaf extracts of *A. odoratissimus* showed average zones of inhibition against *B. subtilis* at 8.38 mm, but did not inhibit the growth of *S. cerevisiae*. Only the leaf extract from *S. koetjape* displayed both bactericidal and fungicidal effects against *B. subtilis* and *S. cerevisiae*, having the mean 8.55 mm and 8.67 mm, respectively. ANOVA results showed significant difference ($p < 0.01$) exhibited by the treatments against *B. subtilis* and *S. cerevisiae* at $p = 8.79E-43$ and $p=1.787E-34$, respectively. It can be concluded that the ethanolic leaf extract of *S. koetjape* has antimicrobial property against both the *B. subtilis* and *S. cerevisiae* while the ethanolic leaf extract of *A. odoratissimus* only displayed antibacterial property.

Keywords: Antimicrobial Resistance, Pathogenic, Antibiotics, Zone of Inhibition



Shivam Kumar
ERCICSTR1929077

Electricity Multiplication and Generation by AC Motor and Electromagnetic Principle

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Abstract

We are living in such era where consumption of electricity is increasing day by day and become a most vital pillar of human and social development resources. Due to limitation of resource we have to find another solution we gave an idea of electricity multiplication to generate electricity from electricity. This article gives an idea to generate electricity a type of renewable source. In modern time this proposed system may help for future energy need and security. This proposed system will generate electricity which will increase share of renewable energy from 24.5 to 50% by now and 2050 respectively. This system in an ideal solution of present existing method of energy generation because this method doesn't depend on resource apart from this it will generate electricity by electricity. This system will try to make between balance between environment and development and they both will run in hand in hand.

Keywords: Renewable Energy, Electricity Generation, Electromagnetic Induction Principle, Generator, AC Motor



Mohammad Tariqul
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ERCICSTR1929080

Factors Influencing the Adoption of Crowdfunding in Bangladesh: A Study of Start-Up Entrepreneurs

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Abstract

Despite widespread adoption of crowdfunding for funding social donation projects, its adoption among start-up entrepreneurs is significantly low, in developing countries in particular. Research has been performed to investigate the crowdfunding adoption intention of start-up entrepreneurs in Bangladesh. This study aimed to identify the motivation behind the intentions of the entrepreneurs to adopt crowdfunding, using the Unified Theory of Acceptance and Use of Technology (UTAUT) model with extensions. Empirical data were collected from 317 respondents and analyzed using Partial Least Squares-based Structural Equation Modeling (PLS-SEM). The results indicate that performance

expectancy, effort expectancy, social influence, facilitating conditions and perceived trust impact significantly on the entrepreneurs' behavioral intention to adopt crowdfunding. In contrast, trialability and perceived trust were not found to be significant determinants. However, trialability has a significant positive relation with use behavior or actual use, whereas no significant relationship has been identified between behavioral intention and use behavior.

Keywords: Crowdfunding, Start-up, Start-up Entrepreneurs, UTAUT Model



Ahmad Marzuki
ERCICSTR1929081

Optical and Electrical Based Indoor Landslide Early Warning System Utilizing the Width Change of the House Wall Crack

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Abstract

House wall Crack in a slope area with high landslide risk is very common. Triggered by small horizontal land movement, relative movement of walls separated by the crack line to create wider crack can occur. In the present work, an early warning system for landslide utilizing such movement is presented. For this purpose, a bar is connected to the displacement sensor. Sensor is fixed to one side of wall at either before or after crack line. The bar from this sensor is fixed to the other side of the wall at the direction perpendicular to the crack. With this configuration, small movement of one part of wall (before or after crack line) activate the sensor. In this paper, two displacement sensors are used, i.e., displacement sensor based on slide resistor and fiber sensor. In the present work, warning is given in the form of sound characterized the increase of frequency as the width of crack increase.

Make Jiwan
ERCICSTR1929082

Introduction of Stingless Bee Rearing in Bario Highland of Sarawak

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Abstract

Meliponiculture is one of the blooming industries in Malaysia due to its economic potential for stingless bee products. Bario highland of Sarawak has high potential for meliponiculture due to its pristine environment and surrounded by montane dipterocarp forest. Meliponiculture is a new agriculture venture in Bario and the diversity of stingless bee species native to Bario is poorly known. Determination of local species of stingless bees is crucial to select the most potential species for domestication. The introduction of the domesticated species from other regions may not be economic due to the differences in microclimate and surrounding vegetation. Over 300 colonies of stingless bees were found in different locations around Bario. To date, there are 15 local species identified and one introduced species namely Heterotrigonaitama in Bario. Based on the size of body and honey pots of stingless bee, we suggested that, Lepidotrigonanitidivintris, Lophotrigonacanifron, Tetrigonabighami, Geniotrigonathoracica, Lepidotrionaterminata, Lepidotrigonatrochanterica and Tetragonillacollina have the potential for meliponiculture in Bario, Sarawak for honey and propolis production.

Keywords: Borneo, Domestication, Honey Pots, Kelabit Highland, Meliponiculture

Omar Abdulhaleem Nasir
ERCICSTR1929083

IoT-Based Monitoring of Aquaculture System

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Abstract

Aquaculture is considered to be a station of interest in many different countries, including Malaysia, which has started on developing its aquaculture system since the 1920s. The two main reasons behind this interest are the great food source for locals and a very good source of income that can help in amazingly increasing the economy of a country, so aquaculture should be well-taken care of, especially, in terms of water quality. Therefore, the main focus and goal of this paper are measuring the water

quality parameters that can suit many types of aquacultural living species, especially the fish species. Six sensors are positioned in a one-tone fish tank to measure and monitor the water parameters' fluctuations, especially during the feeding time. These smart sensors are a waterproof temperature sensor, PH sensor, turbidity sensor, air temperature and humidity sensor, light sensor, and waterproof ultrasonic sensor. These sensors are connected to an Arduino board, which sends the collected data from sensors to the GSM and then to Thingspeak cloud, which is an easy way to monitor data fluctuations 24 hours a day. As a result, the collected data of water parameters seem to be slightly fluctuating which does not affect the health of the fish tank. The reason of choosing these sensors is to also illustrate the statistical correlation between air temperature and water temperature, light intensity, and turbidity, turbidity, and PH, especially during feeding time, and for the waterproof ultrasonic sensor, its main role is to measure the depth of the water in a fish tank. These IoT sensors are very cheap to be bought and easy to be installed and monitored on the cloud. Therefore, this could be very cost-effective for many farmers who want to keep their aquacultural species safe and reproducing.



Kholil
ERCICSTR1929065

Economic Recovery Model for Sustainable Human Life: A Recovery Strategy of Community Life Post Earthquake in Lombok West Nusatenggara Indonesia

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Abstract

Lombok earthquake on July 29, 2018 have a serious impact on human life for local community, more than 564 people were died and 52 % of infrastructure destroyed, and more than 130 thousand houses were damaged. The most serious problem for local community after earthquake is sustainability of human life was threatened, because all of productive activities stoped. BNPB (National Disaster Agency; 2018) predicted that Lombok earthquake has a very serious impact on society to continue normal life.

The purpose of this study is to identify the most strategic assumptions in restoring social life and to develop economic recovery in accordance with objective condition through home industry development, using SAST (Strategic Assumption Surfacing and Testing), and AHP (Analytical Hierarchy Proses)

Results of study showed that mental recovery of local community post earthquake is the most important issues to ensure the sustainability of human life; while for ensuring business continuity of local community must be suitable with its superior potential resources.

Muhammad Younis
ERCICSTR1929069

Iguratimod Encapsulated PLGA-NPs Improves Therapeutic Outcome in Glioma, Glioma Stem-Like Cells and Temozolomide Resistant Glioma Cells

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Abstract

Glioma is the most common neoplasm of the central nervous system, with the highest mortality rate. The present study was designed to examine the therapeutic effect of Iguratimod (IGU) encapsulated-poly (lactic-co-glycolic acid) PLGA nanoparticles (IGU-PLGA-NPs), which showed inhibition of glioma cells proliferation both in vitro and in vivo. IGU was encapsulated in PLGA nanoparticles with

an average size of 100-200nm were prepared using modified double-emulsion (W1/O/W2) method. Cell Counting Kit-8 (CCK-8) analysis of Glioma cancer cells and glioma stem-like cells (GSCs), demonstrated significant inhibition of their growth treated with IGU-PLGA-NPs. IGU-PLGA-NPs inhibits migration in glioma cells as well as tumor sphere formation in GSCs. Treatment with IGU-PLGA-NPs showed a significant decrease in tumor growth through the apoptotic pathway in mice model without any visible organ toxicity and it can successfully cross the blood brain barrier (BBB). Most Importantly, IGU-PLGA-NPs significantly depleted growth of U251 Temozolomide-resistant (U251TMZ-R) cells.

Keywords: Glioma, PLGA, IGU, Therapy



Abu Naser
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YRSICSTR1929051

Impact of Green Supply Chain Management on Business Performance and Environmental Sustainability: Case of an Emerging Country

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Abstract

This study discovers the impact of green supply chain management (GSCM) practices on business performance and environmental sustainability. Cost and profit are the two important indicators of business performance. On the other hand, environmental sustainability is expressed by waste disposal, resource consumption and greenhouse gas emission. Primary data was collected through distribution of links and direct interaction to participants. Structured questionnaire was used for data collection. This study found that the impact of implementation of GSCM practices differs on cost, profit, waste disposal, resource consumption and greenhouse gas emission. GSCM practices have significant impact on greenhouse gas emission. GSCM practices also have statistically significant impact on cost, waste disposal and resource consumption. The impact of GSCM practices on profit was statistically insignificant. It was found that lack of IT implementation, high cost of waste disposal, uncertainty and competition in market, resistance to change and lack of top management support are the major barriers to implement GSCM practices in Bangladesh.

Keywords: GSCM, Cost, Profit, Business Performance, Environmental Sustainability

Kim Minji
ERCICSTR1929088

Optimization of Off-line Programming Work Path for Industrial Robot Arm Using Genetic Algorithms

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Abstract

Robot Off-line Programming is widely used for quick and easy generation of robot program. Robot On-line Programming requires the product line to be temporarily suspended, which greatly reduces productivity. But the accuracy and optimization of Robot Off-line Programming enables robot program without suspending the product line.

It is difficult to input the optimal work path when generating the work path of the industrial robot arm by Off-line Programming. Therefore, it is necessary to optimize the input initial work path to the optimal work path with the minimum energy of the robot arm. This can achieve the effect of improving the robot's life. By using Genetic Algorithms, complex problems that are difficult to calculate in nonlinear equations can be quickly obtained.

In this paper, Genetic Algorithms are applied to improve the initial robot work path quality of the industrial robot arm generated by Off-line Programming to create an optimal robot arm work path

with minimal energy.
In order to calculate the industrial robot work path with Off-line Programming, the representative industrial robot KUKA KR 300 2 PA robot is selected and only the 4 DOF of the robot arm are considered. The position and velocity components of the joints of the robot are calculated using the Denavit-Hartenberg parameters. The motion equation of 4 DOF robot is derived by using Lagrange equation, and the energy of robot arm is calculated by Point to Point method. The genetic algorithm of MATLAB is applied to optimize the robot work path to minimize the energy consumed by the robot.
Keywords : Robot arm; Work Path; Genetic Algorithms; Off-line Programming

Jae Young Cho
ERCICSTR1929087

The Optimization of Device Layout for Cycle Time Minimization

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Abstract

Smart factory layout and layout optimization is necessary for the simulation of productivity evaluation for the introduction of smart factory. The layout of the smart factory depends on the size and shape of the factory site, the order of the processes, and the type of equipment. In this study, we developed a batch optimization algorithm to minimize the work time of the process department of each process in the determined layout state. There are two main ways to optimize the layout. First of all, the distance optimization between the devices, the length of the conveyor belt that moves the logistics, and the working angles of humans and robots were carried out to reduce the moving distance of workpieces. Secondly, time was optimized. In order to minimize the Cycle time of the product, the bottleneck of the device department was checked and the method of reducing the cycle time was suggested according to the type of equipment that becomes the bottleneck. In conclusion, after the modeling of device, this study developed batch optimization algorithm and verified it with Software.



Imad Shakir
Abbood
ERCICSTR1929089

Surface Area Evaluation of Mosul Dom Lake Using Satellite Imagery Technique

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Abstract

Due to water resources such as Tigris and Euphrates rivers, tributaries branches, marshlands and lakes, Iraq is considered, generally in the world and especially in Middle East, as one of the richest countries. These resources are already affected by the consequences of climate change increasingly. One of the most vital projects in Iraq is Mosul Dam (in the northern of Iraq), thus, Mosul Dam lake (MDL), in term of surface area, was observed and studied during the prior 35 years (1984-2019) to detect the effects of historical climate changes on surface area. Satellite data of Landsat has been used in this study based on route 170 and line 35. Best and cloud-free satellite images were downloaded from US Geological Survey. Eventually, ArcGIS technique was used to process and analyze the satellite images. The result displayed that average surface area and parameter of study area was about 242 km² and 432 km consecutively. Relationship between surface area (A) and parameter (P) of study area has been generated and formulated. Furthermore, the correlation coefficient between surface area and parameter was about 71%. Coefficient of variance (COV) was found also to be about 0.271.

	<p>Minimum surface area and parameter of study area were recorded in Sep. 2018 of about 171 km² and 350 km respectively regardless the dates before the operating Mosul Dam, whereas, maximum A and P lake was found to be 337 km² and 664 km in April, 1994 respectively. The analysis showed that the exponential curve representing the best relationship between P and A. Keywords: Mosul Dam Lake, Landsat, GIS, Water Resources Monitoring</p>
<p>Abdelkader Lamamri ERCICSTR1929090</p>	<p>Stabilized Column Generation for the Crew Pairing Problem with Time Windows</p> <p>Abdelkader Lamamri University of Blida, Algeria</p> <p>Abstract Column generation has proven to be efficient in solving the linear programming relaxation of large-scale instances of the crew pairing problem with time windows. However, difficulties arise when the instances are highly degenerate. Recent research has been devoted to accelerate column generation while remaining within the linear programming framework. This paper presents an efficient approach to solve the linear relaxation of the crew pairing problem with time windows. It combines column generation, preprocessing variable fixing, and stabilization. The outcome shows the great potential of such an approach for degenerate instances Keywords : Column Generation, Crew Pairing Problem, Linear Programming</p>
<p>Nana Mulyana ERCICSTR1929091</p>	<p>Identifying Attack Phase using ELK Stack Based on Cyber kill chain Model</p> <p>Nana Mulyana Faculty of Engineering, University of Indonesia, Jakarta, Indonesia</p> <p>Fauzi Rahmad, University Of Indonesia, Faculty of Technic, Jakarta, Indonesia</p> <p>Qusyairi Ridho University Of Indonesia, Faculty of Technic, Jakarta, Indonesia</p> <p>Nidaul Muiz Aufa University Of Indonesia, Faculty of Technic, Jakarta, Indonesia</p> <p>Valentina Siwi Saridewi University Of Indonesia, Faculty of Technic, Jakarta, Indonesia</p> <p>Abstract Attacks in the cyber world have increased along with its development. The cyber kill chain is a model that consists of a series of stages of attack that are used to facilitate the identification process. The identification process requires a tool. This paper discusses the use of tools with an open-source platform, namely Elastic Stack (ELK). ELK is used to store data, analyze and search for data needed in the process of identifying the cyber kill chain stages that occur in the system. Cyber kill chain activities on known systems are expected to be the accelerator to fix exploited security holes. Index Term: SIEM, ELK, Wazuh, Ossec, Auditbeat, Log, Security, Cyber Kill Chain</p>
<p>Patrick D. Cerna ERCICSTR1929092</p>	<p>Building Monitoring System for Electrical Wirings and Water Pipes</p> <p>Patrick D. Cerna Agriculture, Technology and Engineering Unit, Philippine Science High School, Caraga Campus, Butuan City, Philippines</p> <p>Daveigh Kate C. Abogado Philippine Science High School - Caraga Region Campus, Brgy. Ampayon, Butuan City, 8600, Philippines</p> <p>Shaula D. Andiano Philippine Science High School - Caraga Region Campus, Brgy. Ampayon, Butuan City, 8600, Philippines</p>

Bryah Arabella M. Años
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Abstract

With building management systems becoming an energy-saving and economical friendly network for regulating network buildings energy levels, the researchers have designed a building monitoring system designed for monitoring electrical wiring and water piping damages using sensor technology and connective devices to the Internet of Things (IoT). Creating transmitter devices from Arduino microcontrollers and flowmeter sensors for water pipes and current sensors for electrical wires, the transmitters were connected to a central transmitter, with a core gizDuino as its controller, for it to transmit the data to a software on a computer device. The results yielded that an automated building monitoring network for electrical and water systems can be produced and be fully functional. The system proves to be a more efficient method of monitoring and troubleshooting for potential damages in water pipes and electrical wires. With current electrical and water system management, it is difficult to identify area of parts and troubleshoot damages in the systems. By allowing the detection for damages and providing the area for damage, it is much easier for damages to be easily found and repaired at the earliest convenience to prevent a loss in electrical and water resources.



Abdalla Karoyo
ERCICSTR1929084

Surfactant Surface-Patterned Starch Particles for Adsorption-Based Applications: The Role of Sabatiers Principle

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Abstract

This study reports on the characterization of surface modified starch particles (SPs). The SPs were patterned using green chemistry via controlled deposition of cetylpyridinium bromide (CPB) surfactant at incremental CPB loadings, denoted as SP-CPBX, where X = 0.1, 0.5, 2.5, or 5.0 mM. The SP-CPBX systems were characterized using complementary methods: spectroscopic (NMR, FT-IR, Raman, and SEM), thermoanalytical (DSC, TGA), powder X-ray diffraction (PXRD), solvent swelling, zeta-potential (ζ) and particle size distribution (PSD). NMR spectral results reveal that the CPB surfactant is bound at the starch-solvent interface via the pyridyl head group, whereas the tertiary structure of the SPs was maintained upon modification with CPB, as revealed by SEM and PXRD results. The zeta-potential (ζ) results of the SP-CPBX systems indicate negative ζ -values, where tunable surface properties are evidenced at variable levels of CPB that concur with variable adsorptive affinity with water. The degree of swelling of the SP-CPBX systems in water reveal a unique dependence of the hydration properties on the level of CPB surface patterning, as highlighted by the greatest % swelling of the SP-CPB0.5 system, in accordance with the relative accessibility of the active surface sites. The DSC/TGA and Raman/NMR spectral results of the SP-CPBX systems further support that variable surface coverage of CPB governs the interfacial adsorption of water according to Sabatier's principle. In particular, the SP-CPB0.5 system represents the Sabatier's optimum, where the surface-bound surfactant provides optimal physicochemical properties for water adsorption, as well as enhanced material shelf-life due to improved anti-bacterial stability. This report highlights that surfactant-modified starch is a sustainable material with unique adsorption properties that are switchable upon surfactant patterning. The study is anticipated to contribute to advanced material design with functional versatility and potential utility as sustainable desiccant and carrier systems for diverse applications that involve adsorption-based processes.

Keywords: Starch particles, Surfactant, Adsorption, Characterization, Sustainable

Lee Chai Hoon
ERCICSTR1929095

Competencies that Are Required To Remain Relevant for Industry 4.0 and Beyond

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Abstract

In this paper, the competencies required for humans to stay competitive and relevant in the era of Industry 4.0 and beyond were investigated. By looking into the jobs that have become less or even irrelevant, and then scanning through the competencies for these diminishing jobs to spot their patterns, the improved competencies that are required to stay competitive and relevant were established from the existing competencies via addition / alteration / synthesis. Based on this approach, the improved competencies that shall remain relevant were found to be those useful when dealing with multi-faceted work with uncertain / undefined / unknown outcome and process, as well as those favorable for dealing with most types of people effectively and efficiently. Three examples of them, namely complex problem solving skills, people management skills and entrepreneurial skills were discussed.

Keywords: Industry 4.0, Complex Problem Solving, People Management

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