

29th
WORLD CONFERENCE ON
APPLIED SCIENCE, ENGINEERING
AND TECHNOLOGY (VIRTUAL CONFERENCE)
14th October, 2020

ORGANIZED BY

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29th World Conference on Applied Science, Engineering
and Technology
(WCASET – 2020)

14th October' 2020



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IFERP-Explore

Editorial:

We cordially invite you to attend the **29th World Conference on Applied Science, Engineering and Technology (WCASET - 2020)** which will be held on **14th October, 2020** - Virtual conference. The main objective of **WCASET-2020** is to provide a platform for Researchers, Engineers, Academicians as well as industrial professionals from all over the world to present their research results and development activities in relevant fields of Science, Engineering 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 July 2020, the Organizing Committees have received more than 250 manuscript papers, and the papers cover all the aspects in Electronics, Computer Science, Information Technology, Science Engineering and Technology. Finally, after review, about 50 papers were included to the proceedings of **WCASET - 2020**.

We would like to extend our appreciation to all participants in the conference for their great contribution to the success of **WCASET 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 **29th World Conference on Applied Science, Engineering and Technology** this year in month of October. The main objective of WCASET- 2020 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 hearty 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 make this conference successful.



Er. R. B. Satpathy
CEO (Chief Executive Officer)
Institute for Engineering Research and Publication (IFERP)

Message from Keynote Speaker



May Al Leem

Chief Imagineering Officer

Imagineering Department

Sharjah Electricity, Water and Gas Authority

Sharjah, UAE

Greetings!!!

This is with pride and rectitude to be part of this magnificent and dynamic Research Group of international researchers and innovators whose interest is to provide not only innovative projects that surely help the people in the world to live in a comfort life but of course WITH environmental CONCERNS.

Indeed, it is a great honor and privilege to be one of the Keynote Speakers of this prestigious event where brilliant minds meet. It has been my strong desire to SHARE the knowledge and information to all, on the importance of RESEARCH in my own little way. Because I certainly believed that research is an indispensable function of every institution alongside with production and extension services. Being the “lifblood” of an institution, research differentiates basic from higher form of products (Goods or Services or both) and creates unparalleled value, both for the researcher and the institution alike.

This year (2020) as we commence on behalf of the Institute for Engineering Research and Publication (IFERP), we are not only giving our attendees from the international audience and participants delight but we continue to strive harder to savour its delightfulness with the quality and

innovative researches that could be a rich source of information for their research and development offices and as a benchmark for their operations and product enhancements.

At this point, in behalf of the IFERP, I would like to welcome all the participants, researchers, educators, students, practitioners and other professionals from all over the world to this conference and be active in the presentations, discussions and sharing by critically analyzing the outputs on how they can adopt and use them strategically in their own organizations...

A handwritten signature in blue ink, appearing to be 'May Al Leem'.

May Al Leem

ADVISORY BOARD MEMBERS

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Construction and Preliminary Validation of the COVID-19 Pandemic Anxiety Scale

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Abstract:--

The current pandemic (covid-19) has created an unprecedented challenge for scientific community and ordinary people alike. The pandemic apart from being life-threatening has also created a lot on anxiety among the people. This anxiety can have long term consequences for the individual. The purpose of the present investigation was to develop a short scale to assess Covid-19 pandemic anxiety. The data was collected in two phases through online survey. A total of 318 adult Indian participants formed the sample. In the first phase, data collected from 107 participants on the initial 34 item pandemic scale were analyzed through exploratory factor analysis (EFA). For extraction, principal component analysis with oblique rotation was employed. The resulting model was tested in the second phase using confirmatory factor analysis (CFA) with maximum likelihood method. The resulting covid-19 pandemic anxiety scale (covid-19 PAS) was also correlated with an existing scale based on DSM-5, Coronavirus Anxiety Scale: A brief screener (CAS) for determining convergent validity. EFA involving Principal component analysis with oblique rotation identified two factors of pandemic anxiety. The obtained two factors; fear and powerlessness explained 57.36 percent of the variance. The resulting model was tested using CFA with maximum likelihood method. The resulting final model indicated an excellent model fit. Similarly, the internal consistency and validity of the scale indicated that the tool can be used for assessing the impact of Covid-19 anxiety.

Keywords:

pandemic, anxiety, coronavirus anxiety, covid-19, pandemic anxiety scale

Fault Detection of Fluctuating Cutting Tool by using Experimental vibration analysis and Finite element analysis

Akshay Yadav, M.Tech. Research Scholar, Rajarambapu Institute of Technology, Islampur, Maharashtra, India.

Abstract:--

The vibration analysis demonstrated to competent tool for finding mechanical defects. The main objective of this analysis was to identify a problem within a machine and then take some action. The fluctuating cutting tool has an application in the surgical sector. Because of this application type instrument should have a smooth working feature without any disturbance. But this instrument has a problem of excessive vibration, and heat ultimately comes into the system. The use of faulty power tools will be harmful to a human being. And also, this power tool functioning for a long time, there might be a chance of fatigue failure. The experimental vibration analysis and finite element analysis are using to find the defects. Then the results of these analyses are using to modifying the product to achieve minimum vibration. The finite element analysis is using to validate the vibration analysis

Finite Element Analysis of Saddle Support for Stack Heat Exchanger

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Nilesh More, Rajarambapu Institute of Technology, Islampur, Maharashtra, India

Abstract:--

Process equipment is a leak proof container designed to hold or carry the gas or liquid or solid at a substantially high pressure that is usually different from the ambient pressure. Examples of common process equipment utilized within the petroleum refining and chemical processing industries are storage tanks, boilers, pressure vessels and heat exchangers. Stack heat exchanger is a device in which arrangement of two or three horizontal heat exchangers placed one above other. Exchangers are stacked due to several aspects like process requirement, structural constraint, process plant requirement etc. Two exchangers series or parallel are usually stacked. During this paper, the horizontally stacked shell and tube heat exchanger supported on saddles is analyzed. The finite element analysis for various configurations of saddle supports is completed using ANSYS. The stress intensities in various cases are analyzed and also the optimal stresses in saddle with the loading condition is taken into account as the most suitable design for the stack heat exchanger. The reduction in stress intensity is found for one amongst the cases.

Keywords:--

Process Equipment, Heat Exchanger, Stack, Saddle, Analysis

Condition of a Core Shelter Resettlement in an Agricultural Area in Mountain Province, Philippines

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Joebeth T. Papat, Mountain Province State Polytechnic College (MPSPC)

Abstract:--

A huge part of Otucan, Bauko, Mountain Province, Philippines was declared by the Mines and Geosciences Bureau in 2011 as not fit for human settlement due to dangers of mass movement. Resettlement was established at Kalimatawa, Otucan in 2013 but four years after, the area is partially inhabited. This study aimed to determine the soil condition and engineering issues of the resettlement area and verify the conformity of the core shelters to the specifications prescribed by the Department of Social Welfare and Development. The researchers gathered soil samples and subjected such to engineering methods of determining soil classification and moisture content; noted engineering issues; and measured the dimensions of the 355 core shelters. The soil is classified as silty-clay, a poor foundation for structures. Its moisture content is 59.69% which is higher than the 15% maximum moisture content for foundations in order for structures to be stable. There are observed cracks on walls, floors and columns and only 15% of the core shelters are occupied. The sizes of the core shelter units vary from 20.16 m² to 26 m² which do not conform to the prescribed 20 m² size. This study can be used for policy development on resettlement.

Transfiguring Healthcare through the Internet of Things

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Dr. Sanjay Tejasvee, (Asst. Professor) Dept. of Computer Applications, Govt. Engineering College Bikaner-India

Abstract:--

The Internet of things (IoT) is an enumerative process where every object is geared up with micro controllers, sensors, and transceivers for authorizing communication. As IoT is emerging new healthcare services are available and already accessible systems are consolidated in the IoT substructure. IoT provides a coherent plan of action that helps in connecting physical objects and human beings by providing a large number of applications like tracking heart rate, oxygen levels, sleeping positions, environmental monitoring, pharmacy inventory control, etc. Patients' interactions were restricted to visits to the hospital, and text and telephone conversations before the Internet of Things came into the picture. No continuous monitoring and recommendations were provided by the doctors to their patients. Devices that are enabled with IoT have made distant monitoring possible and hence keeping patients healthy and safe. Due to the increase in population with chronic diseases, it is very difficult to handle the healthcare sector effectively. In this paper, a concise prologue into IoT Healthcare, and the applicability of IoT in Healthcare will be discussed. A comprehensive architecture of IoT Healthcare network is presented along with IoT applications in healthcare. This document layout example architecture that take into deliberation of technical, empirical, and network elements for the successful distribution of IoT in healthcare. Various perceptions of The Internet of Things criterion are reported and validated technologies reviewed.

Keywords:--

healthcare, wearable devices, patient privacy, data security, Asset tracking

Study of Analytical Method for Structural Health Monitoring by Electro Mechanical Impedance Principle

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Maharashtra, India

Dr. Samir B Kumbhar, Rajarambapu Institute of Technology, Islampur, Maharashtra, India

Abstract:--

Structural Health Monitoring is a field in which the structure is inspected continuously against occurrence of the damage i.e. the structural integrity of the structure is checked and if any deterioration in the structure has occurred due to cyclic loading or mechanical impact to avoid accidents due to breakdown of the structure. The damage to the structure affects its operation, serviceability, safety or reliability. Damages due to the structure may lead to the fatal accidents if they are not detected on time. The safety and reliability of the structure is increased hence accidents can be avoided. In this presented work, Electro-mechanical Impedance (EMI) NDE techniques was used for structural health monitoring. The Piezoelectric material was used to detect the change in structure because of its quick response to change in mass and stiffness of structure. The acquired data was analyzed using correlation method for checking the condition of structure.

Keywords:--

Piezoelectric smart material, structural health monitoring, non-destructive evaluation technique, Electro-mechanical impedance technique, statistical methods, correlation method

CLIMATE CHANGE
Challenges and Opportunities Baseline Study
Gereigikh Administrative Unit Bara Locality, North
Kordofan, Sudan

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Dr. Rawia Alfadil Sharif Mahmoud, Ahfad University for Women, Sudan

Dr. Nagwa Babiker Abdalla Youssef, Assistant Professor of Sociology, Ajman University, UAE

Abstract:--

This study aims to identify the challenges and opportunities of natural resource access, use and management systems of Gereigikh area (landscape) at four villages located in Gireigikh Administrative unit, Bara Locality North Kordofan State- Sudan. The study adopted the participatory survey method with emphasis in using multi qualitative tools to achieve the objectives. The villages and household sample were purposively selected in consultation with the local leaders and members of the Environmental Society (Gereigikh branch). In each village five households, participated in qualitative data collection methods and tools such as Focus Group Discussion (FGDs). The researchers used statistical methods of SPSS to achieve the study results that include challenges related to the scarcity of grazing resources, coupled with communal land use. Mainly, the and degradation and desertification risks, climate change, as reflected in the amount and distribution of the rainfall and the rising temperatures. Expansion of agriculture at the expense of pasture land. Prolonged drought periods. Loss of vast pastoral grazing areas due to expansion of agriculture. Deterioration of resources, and shortage in potable water. Opportunities include using of drought resistant animals to diversify livestock species in favor of resilience to drought. Availability of wells as source for water for irrigated agriculture to protect the environment and secure the food. Environmental sustainability by using drip irrigation system. Adopting institution building approach to empower the existing committees through coordination and networking for improving natural resource management.

Key Words:

Natural Resources Management System. Climate Change. Environment Sustainability

Image classification for surface defect detection of magnetic tile using Convolutional Neural Network (CNN)

Heramb Narendra Somthankar, B.E. Mechanical

Abstract:--

This paper presents a classification study on surface defect detection of magnetic tile production using the Convolutional Neural Network (CNN) method with tensorflow and keras. Deep learning technologies are becoming the major approaches for natural signal and information processing, like image classification, speech recognition. Convolutional neural networks (CNN) become very popular for image classification in deep learning; CNN's perform better than human subjects on many of the image classification datasets. Surface defect detection is a core process of filtering unqualified products, however, the procedure can rarely be finished automatically. To relieve human labor, many image processing techniques have been proposed to attempt such examination tasks. There have been several bottlenecks presented in the automatic damage detection for magnetic tiles, including the complexity of texture, the variety of defect shape, and the randomness of illumination conditions on magnetic tiles. The target defects are blowhole, crack, break, fray, etc. The dataset for this classification is imported from Kaggle open-source dataset. The dataset consists of 2700 images for various surface defects and scrutinized accordingly for their respective defects. The CNN was deployed on dataset and 10 iterations or epochs were performed for training. The grayscale images in the data set used for training which requires more computational power for the classification of images. By training the images using the CNN network we obtain the 82% accuracy result in the experimental part it shows that our model achieves high accuracy in classification of images.

Keyword: -

Deep Learning, Convolutional Neural Networks (CNN), tensorflow, keras, image classification.

Antioxidant activity of Virgin Coconut Oil and Virgin coconut Oil Emulsion

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Abstract:--

Virgin Coconut Oil (VCO) has high medium-chain fatty acids, making a potential functional food which can improve benefits for the health. The aim of this research was to determine the antioxidant activity of Virgin Coconut Oil and Virgin Coconut Oil Emulsion with different sweetener. Antioxidant activities of Virgin Coconut Oil was due mainly of Phenolic compound. The major phenolic acids were ferulic acid and p-coumaric acid. Emulsion was more palatable than oil form, because oily taste is not convenient for the consumer or patient, so the sweetener. Virgin Coconut oil emulsion contain of VCO, water, Xanthan gum, orange extract and different sweetener. Sorbitol, Honey, Gukosa as sweetener. Antioxidant ability of the Virgin Coconut Oil and Virgin Coconut Oil Emulsion was assessed by beta-carotene bleaching assay. Antioxidant activity of Virgin Coconut Oil was 56.2%. Virgin Coconut emulsion with honey was 63.2%, with sorbitol 70.5%; with glucose 37.1%. emulsion without sweetener was 57.1% and Quarsetin as a control was 92.5%. It is concluded that VCO Emulsion with sorbitol as sweetener has the highest activity of antioxidant.

Keyword: -

Antioxidant, VCO, VCO Emulsion, sweetener

Adverse Weather Impact on Driver Performance in the UAE

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Abstract:--

Road traffic accident is a major cause of death around the world. Many factors cause accidents such as demographic factors, humane factors, road design factors, and weather factors. This research will focus on investigating the adverse weather effects on driver performance by analyzing the impact of weather conditions on behaviors of drivers by using some statistical tools such as the one-way ANOVA test and correlation analysis. Analyzing driver performance during bad weather is an essential technique used to minimize the impacts on traffic safety. The data collected based on a questionnaire distributed to people who live in the United Arab Emirates. The survey includes two-parts, first part is about driver characteristics (Gender, Age, Nationality, Marital status, Education level, Monthly income, and Driver experience) and the second part is about driving behaviors during different bad weather conditions as rain, fog, flood and sand storm. A one-way ANOVA statistical test used to find the effects of driver's characteristics on the variables that are cause traffic accidents. Based on the results of this paper, age and education level is the most characteristics that affect the performance of the driver. Adding to this point, fog is the most dangerous conditions on traffic safety because it increases the congestion, traffic accidents, reducing visibility and increasing the travel time. The suggested solution is to focus on drivers' awareness before having driving license and using good travel information systems.

Keyword: -

component, weather condition, driver behavior, bad weather

Big Data Analytics and Visualization using Tableau

Vinitha.V, VTU-Belagavi, India

Velantina.V, VTU-Belagavi, India

Abstract:--

Big data Analytics is an emerging trend in today's world and Big data analysis is receiving increasing attention in many industries, including healthcare. Visualization plays an important role not only in intuitively showing the results of data analysis but also in the whole process of collecting, cleaning, analyzing, and sharing data. This paper presents a procedure for the interactive visualization and analysis of healthcare data using Tableau as a business intelligence tool. Amazon Web Services has been the leader in the public cloud space since the beginning. Tableau integrates with AWS services to empower enterprises to maximize the return on organization's data and to leverage their existing technology and investments. It all starts with direct connections to Amazon data sources including Amazon Aurora, Amazon Athena and Amazon EMR. Tableau is the natural choice of platform for analyzing the data stored in Amazon's data sources. Beyond this, Tableau provides the depth and breadth of capabilities to ensure that data can be confidently deployed across the entire enterprise. Tableau Server runs seamlessly in Amazon's cloud infrastructure so organizations that prefer to deploy applications on Amazon Web Services have a complete solution offering from Tableau. Since Tableau provides various visualizations and customizations, the level of analysis can be increased with small multiples, view filtering, mark cards, and Tableau charts. Tableau is software that can help users explore and understand their data by creating interactive visualizations.

Keyword: -

Big data ,Tableau , Data analytics , visualization.

Designing Supply Chain Performance Improvement Strategies on Lubricant Company Production Division using SCOR and IPA

Fauzia Dianawati, Universitas Indonesia

Amal Vega Pradana, Universitas Indonesia

Abstract:--

This research was conducted to measure overall supply chain performance on lubricant company production division with the aim of designing strategies to improve supply chain performance. Supply Chain Operations Reference (SCOR) framework is used as performance measurement method, Analytical Hierarchical Process (AHP) method to weight each indicator, and Traffic Light System to categorize the supply chain performance value based on color. Improvements made in this study were carried out for the problems occurred in production division that are related to the company's competitiveness. There are 43 key performance indicator (KPI) measured and breakdown into SCOR model perspectives at each level. The measurement results indicate that the company's production division supply chain performance in 2019 is categorized as "good" with the average value of 72,53%. After that, the KPI is mapped into the Importance Performance Analysis (IPA) quadrant to obtain KPIs that has poor performance and level of importance that is high enough to be improved. From the Importance Performance Analysis (IPA) results, there are 7 KPI from the production division that need to be improved. Based on literature and experts discussion, 9 proposed improvement strategies are obtained to improve the supply chain performance in production division.

Keyword: -

Analytical Hierarchy Process, Lubricant Industry, Performance Measurement, Supply Chain Operations Reference

Determination of the Number and Location of Blood Donor Unit to Maximize Blood Supply at South Tangerang Blood Transfusion Unit

Fauzia Dianawati, Universitas Indonesia

Diviandari Sabitha, Universitas Indonesia

Rizqiah Insanita, Universitas Indonesia

Abstract:--

The minimum amount of blood needs must be fulfilled, otherwise the hospital will have difficulty in making blood transfusion to patients in need. One of the provinces whose blood needs have not yet been fulfilled is Banten Province. To meet the blood needs in Banten, a proposal arose to create a new Blood Donor Unit in South Tangerang so that the amount of blood supply could reach the minimum target of blood needs. To solve this problem, this study uses Binary Integer Programming to make decisions in determining the number and location of Blood Donor Units from several choices by considering several factors that may affected the result. The results of the study show that two Blood Donor Unit locations were chosen to be built. From the first location, the number of blood donations was 1680 bags per month, with a manufacturing cost of Rp. 597,958,976. From the second location, the total number of blood donations was 930 bags per month with a manufacturing cost of Rp. 595,056,976. From the two new Blood Donation Units, the amount of blood obtained has met the minimum amount of blood needs of Banten Province per month and is in accordance with the budget.

Keywords:

Binary Integer Programming, Blood Donor Unit, Blood Needs, Location Selection

Designing Performance Improvement Strategy in Automotive Companies Using SCOR Model and Importance Performance Analysis

Fauzia Dianawati, Universitas Indonesia

Kemas Zaky Zamzamy, Universitas Indonesia

Abstract:--

This research was conducted to measure supply chain performance in commercial vehicle manufacturing companies in Indonesia. The method used in this research are Supply Chain Operations Reference (SCOR) as a performance measurement framework, and Analytical Hierarchy Process (AHP) method to determine the weight for each performance indicators. The objective of this research is to measure the supply chain performance from the company in 2019 and obtain improvement strategies to improve the overall supply chain performance of the company. There are 29 performance indicators that are measured and divided into SCOR model's perspectives for each level. The result of the measurement indicates that the performance of supply chain in 2019 is 82.14% which shows the company's performance is in good category. Then, each KPI will be mapped to the Importance Performance Analysis (IPA) quadrant to get which indicators that need to be improved. The proposed strategy is analyzed using prioritization matrix tools. There are ten proposed action plan strategies chosen to improve five KPI based on the Importance Performance Analysis (IPA) which expected to give good impact on the company's overall supply chain performance improvement.

Keywords:

Supply Chain Operations Reference, Analytical Hierarchy Process, Importance and Performance Analysis. Performance Measurement, Supply Chain, Automotive Industry.

Allocation Planning of Blood Distribution in Banten Province by Using Integer Linear Programming

Fauzia Dianawati, Universitas Indonesia

Listya Maharani Ardiningrum, Universitas Indonesia

Rizqiah Insanita, Universitas Indonesia

Abstract:--

Bloods are needed in various medical treatments related to the human's health, thus blood in hospitals in several regions of Banten Province very crucial, so the Blood Transfusion Unit (BTU) needs to allocate blood to the hospitals. In this research, Integer Linear Programming (ILP) method is used to determine the allocation planning of blood distribution in Banten Province. The capacity planning allocation method is used with the objective of optimizing the overall distribution cost. The mathematical model designed is translated into the LINGO 18 programming language. The results show the number of blood bags that need to be allocated by considering the BTU capacity, which also informed the source and destination of the allocation of blood bags from each BTU and each hospital, which can be categorized as the main and alternative allocations. This blood allocation is expected to facilitate hospitals and those in need in obtaining blood. From these results, it was found that BTU P and BTU R allocated 15 hospitals for the main allocation, while BTU Q to 35 hospitals. In addition, the overall calculation results show that the total cost of the distribution between the BTU and the hospital is Rp729,771,525

Index Terms—

Blood Supply Chain, Blood Allocation, Distribution Cost, Integer Linear Programming

Material Supply in an Assembly Line Feeding Process on Automotive Industry Using Mixed Integer Linear Programming

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Muhammad Fauzan, Department of Industrial Engineering, Universitas Indonesia

Abstract:

Customization of products is a barrier for companies that have limited assembly lines, especially in the automotive industry. Assembly lines in the automotive industry are required to maintain production performance with the amount of material needed for each type of vehicle made. Continuous supply which means distributing material to the assembly line in a certain cycle is applied by companies in the automotive industry. Material distribution scheduling is a challenge to be able to supply material in the right amount, at the right time, and to the right place. This research was made with the aim to find the optimal material distribution for an assembly company in the automotive industry. A mathematical model was developed to minimize the cost of using a material delivery vehicle at one time of production. The method used to solve this problem is to use Mixed Integer Linear Programming and interpret it into a computer model with the LINGO 18 programming language. The results of this research for one-time production are obtained scheduling material delivery for each cycle. The number of tow train for each delivery cycle in one production time is also obtained so that it can show a reduction in the cost of using the tow train up to Rp203,638,109.11, or by 36%

Keywords :

Mixed Integer Linear Programming, In-house logistics, Tow train, Scheduling.

Assessing the Maturity Level of a Meteorological Instrument Station Construction Project Using the Sustainable Construction Approach

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Nara Adhithana, Universitas Indonesia, Depok, 16424, Indonesia

Abstract:

Two aspects that has to be considered in a construction project are project management which usually associates with maturity model and sustainability. Sustainability in construction usually known as sustainable construction, emerge as a result of waste generated by construction project which responsible for an estimated 50 percent of solid waste. Construction of a meteorological instrument station also takes part in contribution of solid waste. Due to weather uncertainty, more meteorological instrument stations are being construct progressively. Aside from the time consuming construction, it is also located among residential area which will be used for a long period of time. The sustainability theory itself has 3 pillars that is economy, environment, and social. Therefore, it is important for contractor to implement sustainability practices. The purpose of this article is to assess sustainability practices in case studies addressed to construction of meteorological instrument stations in 3 different locations in Indonesia. The result, which processed using Distance to Ideal Maturity Level (DIML) and Important Performance Analysis (IPA), shows one location with lowest maturity level (3 out of 5). Furthermore, recommendations on sustainability practices are provided in order to improve the maturity level of the project.

Keywords :

project management, Importance Performance Analysis (IPA), maturity level, sustainable construction

Designing Distribution Blood Route from South Tangerang Blood Transfusion Unit to Hospitals with Vehicle Routing Problem

Fauzia Dianawati, University of Indonesia

Thifal Ananda, University of Indonesia

Rizqiah Insanita, University of Indonesia

Abstract:

Vehicle Routing Problem is an optimization tools to determine the number of routes that begin and end in one place. In Indonesia, the availability of blood doesn't fulfill the World Health Organization requirement. It is a serious problem that may cause death for humans. Blood Distribution is not evenly distributed in various hospitals. Blood that the hospital received has some damage. This is caused by an uncontrolled temperature where the distribution does not use the right procedure. In addition, blood is distributed more than maximum time outdoors. This study aims to obtain a vehicle route for blood distribution with a time constraint to get the optimal number of vehicles. Vehicles Routing Problem helps this study to get three routes and three vehicles, with total time 661 minutes.

Index Terms

Blood Supply Chain, Blood Distribution, Vehicle Routing Problem, Route, Time.

Worksheets in Practical Research 2 Used by Technical, Vocational and Livelihood Students of Mangaldan National High School

Analyn I. Diola, Instructor I, Pangasinan State University, Philippines

Abstract:

As always thought by many, Research is a difficult subject. Many in the Senior High School are working students. Few were into family and personal problems. Often, they incur absences. As a solution, Worksheets are made by the Teacher-Researcher and utilized by the Technical Vocational and Livelihood students in Practical Research 2. Most of the time, this was sent by the Teacher thru Facebook messenger. An evaluation is conducted on the acceptability of the Worksheets. Reflection journal written by the students was examined. Survey was also conducted to determine the acceptability of the Worksheets in terms of clarity, content, teacher-related aspect and student-related aspect; the advantages, disadvantages, difficulties and changes to be made, and the overall reaction of the students on the Worksheets. As a result, the Worksheets are rated as good in terms of clarity, content, teacher-related aspect and student-related aspect. Worksheets made the writing of each research chapter easier. But because Worksheets are provided, being absent in class turned okay. There were difficulties in answering the Worksheets due to directions and language used. It was suggested that explanations shall be provided on each Worksheet. There were positive overall reactions on the Worksheets. Therefore, it is concluded that the Worksheet can be continually utilized but with the major changes to be incorporated on the content as well as the manner of dissemination.

Index Terms

Practical Research, Worksheets, Evaluation of Worksheets

Prediction Model for Financial Data and Anomaly Detection using ML and DL Techniques.

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NoorJeham Begum.K, B.S. Abdur Rahman Crescent Institute of Science and Technology

R.Priyadarshini, B.S. Abdur Rahman Crescent Institute of Science and Technology

N.Rajendran, Dep B.S. Abdur Rahman Crescent Institute of Science and Technology

Abstract:

In today's financial world, there is a need to detect the anomalies in financial data which will help the enterprises to deal with the huge amount of auditing. In the today's world, most of the data dealt is digitized and stored in the cloud. The corporate and enterprise is conducting audits on large number of ledgers and journal entries. The monitoring of those kind of audits are performed manually most of the times. There should be proper anomaly detection in the group of data published in the ledger format for auditing purpose, if the anomaly detection is made automatic by using machine learning and deep learning techniques it can be accurately predicted. Even if any of the anomaly like manipulation or tampering of data detected, such anomalies and errors can be identified and marked with proper proof with the help of the machine learning based algorithms. Topic modelling and matching of the figures with past usual figures the errors can be modified. The accuracy of the prediction is increased by 7% by implementing the proposed SOM based Convolutional Neural Network Model.

Online Feedback Analysis Based Personalized Recommendation System using Deep Neural Networks for E- Commerce Websites

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Mohammed Yasar Arabate N, B.S. Abdur Rahman Crescent Institute of Science and Technology

N.Rajendran, B.S. Abdur Rahman Crescent Institute of Science and Technology

R.Priyadarshini, B.S. Abdur Rahman Crescent Institute of Science and Technology

Abstract:

Deep Neural Networks are used in various fields to analyse and also used in mapping out correlations between various given data by testing and training. We use the Convolutional Neural Network which is one of the Deep Neural Networks while extracting through Collaboration Filtering to analyse and give simple Recommendation. The reviews of the customer and match the rating using Latent Dirichlet Allocation (LDA) and recommend the product to the customer. To establish a correlation between customer feedback, ratings, and sellers' claim about the product using Collaborative Filtering based Convolutional Neural Network. Sentiment classification is utilized to verify and analyze the comments or datasets collected from users regarding their opinion, reviews, etc. Sentiment analysis is a machine learning approach in which machines classify and analyze the human's sentiments, emotions, opinions about the products using comments, Star ratings. In the previous work, machine learning algorithms such as Support Vector Machine, Naïve Bayes algorithm are used for extraction of meaningful words in the feedback and reviews analysis. Ontology based word analysis is performed for enhancing the accuracy of the recommendation to the users. According to the personal requirement and ontology based analysis the reviews were analyzed. In this work, deep neural network algorithm is used for analysis of the sentiment from the reviews and feedback in the amazon dataset. Collaborative Filtering Based Convolutional Neural Network algorithm is utilized in sentiment analysis to improve the performance parameter such as personalized recommendation for customer with increased accuracy and precision.

MALWARE FEATURE EXTRACTION BY DYNAMIC ANALYSIS USING ENSEMBLE CLASSIFICATION

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Mohammed Riyasudeen. A, B.S. Abdur Rahman Crescent Institute of Science and Technology

Mohammed Arshath farooq .A, B.S. Abdur Rahman Crescent Institute of Science and
Technology

N.Rajendran, B.S. Abdur Rahman Crescent Institute of Science and Technology

Abstract:

With the development of the Internet, cyber-attacks become a major threat to security and the cyber security situation is not optimistic. Cyber-attacks are insidious and damage causing to the system and its user. Cyber-criminals disseminate malware on multiple computers or servers and gain either partial or total control of the system. The considerable number of articles cover machine learning for cyber security and the ability to protect us from cyber-attacks.

In the existing systems, there are many types of detection of malwares like anomaly detection, misuse detection and hybrid detection. Also, the existing system uses Static analysis to understand the malware structure. It requires domain expertise. They does not fully implement the required abilities to identify a malware in a system. These may cause severe fallbacks in finding the harmful programs in a system. Sometimes, it leads to misinterpretation of a good-ware to be a malware and vice versa. In the above detection algorithm, there is a research gap in identifying every feature in the log files. The proposed system provides a sand-box approach in which all the features in the log files are predicted and acted upon. Here, the important thing is benchmarking an algorithm for detection of malware using feature based extraction and improving the abilities of a system to find the maligned files in a more interrogative manner.

The accuracy of feature prediction is improved using modified dataset that are implemented in ensemble algorithm by 10%.The proposed system facilitates the user to identify any kind of feature in the log files which leads to malware attacks.

Water Reduction potential in Thermal Power Plant in India

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Ritesh palkar, Marwadi University, Rajkot, Gujarat, India

Abstract:

Water & Coal are the blood & food of a thermal power plant. As like without water & food a human being can't alive, similarly without water and coal, anybody cannot imagine a thermal power plant or without water & Coal power plant can't produce electricity. As much as needed in modern life without electricity anybody can't be imagination of a piece full life. Water is the essential requirements for thermal power plants. Water is used in Boiler for Steam generation, in cooling towers as a coolant. As we all know whole world is suffering, the shortage of fresh water for drinking & utilization of human being. Huge quantity of fresh water is required for power generation in thermal power plant. The current water consumption in Indian coal based thermal power plant is around 1100 million m³, which is much higher than our neighbor country China. Which has power generation capacity is around 2.5 times then India. In Indian power industries have huge potential to reduce Fresh water consumption by adopting new techniques or by modifying the current techniques with minor changes. 90% of water consumption in thermal power plant as in the form of Evaporation in Cooling towers. It can be reduce by adopting some techniques such as.

- 1) By increasing C.O.C of circulating water
- 2) By decreasing blow down with modification
- 3) By decreasing drift losses
- 4) Modified chemical treatment programs
- 5) By adopting Air Cooled Condenser techniques instead of Wet Cooling Towers.
- 6) By adopting hybrid C.T.
- 7) By recycling & reuse of Blow down water

My study is about to develop the techniques to reduce water consumption in Thermal power plants in India. This study give the direct benefits to power industries for reducing their power generation cost, by decreasing fresh water requirements, and indirect benefits like reduction in auxiliary power consumption in Cooling water pumping, m/up water pumping & reduction cooling m/up water chemical pretreatment cost .

Biography: My self Pawan Kumar, I am a research scholar in Dept. of Chemistry in SUNRISE University, Alwar, state Rajasthan from January 2020. I am doing research in water conservation scope in thermal power plant in India.

Index Terms-

hermal Power Plant, Water conservation, Cooling Tower, Cycle Of Concentration, Power Generation Cost Reduction etc.

A Different Approach for Multi level Distance Labellings of Path Structure Networks

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Abstract:

For a positive integer k , a radio k -labelling of a simple connected graph $G = (V, E)$ is a mapping f from the vertex set $V(G)$ to a set of non-negative integers such that $|f(u) - f(v)| \geq k + 1 - d(u, v)$ for each pair of distinct vertices u and v of G , where $d(u, v)$ is the distance between u and v in G . The span of a radio k -coloring f , denoted by $span_f(G)$, is defined as $\max_{v \in V(G)} f(v)$ and the radio k -chromatic number of G , denoted by $rc_k(G)$, is $\min_f \{span_f(G)\}$ where the minimum is taken over all radio k -labellings of G . In this article, we present results of radio k -chromatic number of path P_n for $k \in \{n-1, n-2, n-3\}$ in different approach but simple way.

Keywords:

Frequency assignment problem, Radio-coloring, Radio k -chromatic number, span
2010 MSC: 05C78, 05C12, 05C15

Fabrication of Zinc Metal Matrix Composites Reinforced with Silicon Carbide and Industrial Waste Metallic Chips

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Abstract:

In this world, the development of composite materials as well as the related design and manufacturing technologies is one of the most important advances in the history of materials. Metal Matrix Composites (MMCs) are combination of materials having mechanical and physical properties which can be tailored to meet the requirements of a particular application. The characteristics of MMCs like greater hardness along with high tensile strength provide the mechanical engineer with design opportunities not possible with conventional monolithic materials. MMCs are important materials which are now used widely, in the aerospace industry as well as in a large and increasing number of mechanical engineering applications, such as internal combustion engines, machine components, automobile, train, and aircraft structures and mechanical components, such as brakes, drive shafts, flywheels, tanks. Zinc casting alloys are versatile engineering materials because of its high impact strength compared to other alloys and only zinc alloys provide good strength along with the toughness to the material. Also, Zinc alloys are feasible matrix materials owing to their good wear properties, lower casting temperatures and lower cost. The reinforcements like the silicon carbide powder in preparation of Zn based MMCs gives material the greater strength, greater hardness, low thermal expansion and high thermal conductivity. Hence, in this paper Zinc metal matrix composite is fabricated by varying the percentage of reinforcement of silicon carbide by using electric stir casting process and the improved mechanical properties like hardness, tensile strength and nature of microstructure will be studied.

Index Terms

Zinc Metal Matrix Composites, Silicon carbide, hardness, tensile strength, nature of microstructure

Grafted Hyaluronic Acid Nanogel for the Incorporation of Poly(I:C) as an Immunostimulatory Adjuvant

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Abstract:

The aim of this research was to develop a nanogel formulation based on modified natural polymer, hyaluronic acid (HA), as biodegradable material for adjuvant delivery. Polyinosinic:polycytidylic acid (poly(I:C)) have been approved by FDA as promising adjuvant candidate for the TLR3 (Toll-Like Receptor 3) activation to induce of effective immune system. However, it suffers from being poor stability and is subjected to rapid enzymatic hydrolysis in serum, so that it requires high administered dose leading to the adverse effects. To augment the adjuvant stability and protection from the degradation, the nanoparticulate carriers were herein designed with self-assembly of HA scaffold grafted with poly (N-isopropylacrylamide), or pNIPAM. The grafting was processed through amide formation using the coupling agent (EDC/NHS). ¹H NMR was carried out to confirm the modified products. The physical incorporation of the nucleic acid into the grafted HA nanogel was achieved by incubation method with the poly(I:C) concentrations of 0.2, 1, and 10 µg/ml in formulations by using 0.1, 0.25, and 0.5% w/v of HA-g-pNIPAM to form the nanogel particles. The mean size, size distribution and surface charge of the nanogels were characterized by dynamic light scattering (DLS). The particle morphology was investigated by transmission electron microscopy (TEM). Results demonstrated that HA-g-pNIPAM with 4.4% degree of substitution were formed into nearly spherical nanogel particles with the size of approximately submicron range. The particles presented negative value in zeta-potential showing that poly(I:C) was entrapped. Moreover, we founded that the size and PDI of particles were decreased upon continuous incubation. The development of this poly(I:C)-loaded grafted HA nanogel will lead to the new generation of smart materials that can be functionalized and optimized for different medical purposes..

K-means, Neural Network Clustering and Optimization of Flatwork ironing machine.

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Salve Ajinkya, R. H. Sapat College of Engineering, Nashik, India

Abstract:

This paper intends to categories and optimize the dataset for Flatwork ironing machine. Flatwork ironing machine or Saree roll press machine is used in laundry services for the garment and fabric finishing, the prime method for providing high surface finish for different type of fabrics. Several experiments were performed on Flatwork ironing machine, Roller Speed, Roller Temperature, Finishing Time, Surface Finish are considered as parameters for dataset. K-mean and Neural Networks clustering were employed to cluster the dataset according to surface finish and finishing time values. The dataset is then filtered for high surface finish and minimum finishing time. This filtered data is utilized to optimize the roller speed and roller temperature by using Response surface optimization. Response surface optimization (RSO) is a strategy utilized for streamlining of level work optimization of flat work ironing machine to get high surface completion for ideal roller speed and roller temperature, by arranging the results of both grouping calculation and improvement procedure the working expense of the machine is decreased.

Index Terms

K-means Clustering algorithm, Neural network Clustering, Response surface optimization (RSO), Flatwork ironer, Saree roll press machine.

Performance forecasting of Microcombustor based
Thermoelectric generator using Gaussian process regression
(GPR)

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Dr. Prashant Nehe, Associate professor, Mechanical Engineering, R. H. Sapat College of Engineering,
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Abstract:

Electricity generation in present comprises shortage of fossil fuels, Oils, gas etc. burning of these fuel causes harmful effect on environment like pollution, global warming etc. Also portable electrical and mechanical devices demand increasing amount of energy. Thermoelectric generator can be good alternative in such case to generate power without pollution with less moving parts and useful for remote areas. Microcombustor based thermoelectric generator system is useful to generate electricity. This paper propose a new predictive model based on Gaussian process regression (GPR) that are mattern 5/2 algorithm and mattern 3/2 algorithm model for estimating the performance for comparison for microcombustor based thermoelectric generator. The algorithm gives best comparison with experimental data.

Keywords:

Thermoelectric generator, Microcombustor, Gaussian process regression (GPR), mattern 3/2 algorithm, mattern 5/2 algorithm.

Magnesium metal matrix composite fabrication with fly ash cenospheres by using electric stir casting.

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V. C. Kale, Mechanical Engineering, R. H. Sapat College of Engineering, Management Studies and Research, Nashik- 422005, India (Savitribai Phule Pune University, Pune).

Abstract:

In present condition, there are many challenges in automotive, aerospace and marine applications like enhancement of fuel economy, reduction in weight, maintaining safety, quality maintenance. To satisfy these requirements, there's need for develop new and advanced materials with new fabrication processes. The requirement for environmental friendly, light weight and high-performance material within the automotive applications has made us to think on research on developing magnesium metal matrix composites and their economical fabrication. Composite materials are like smart materials which can give us multiple properties at a time. Reinforcing materials can be used to boost various mechanical properties of magnesium metal matrix composites. The economical and environment friendly ways of manufacturing of composite materials is, hence, an essential element for expanding their use in large areas for applications. The supply of enormous quantity of reinforcing materials makes them attractive for research work. Magnesium materials have unique characteristics and have high performance rate of composites which give effective approaches to strengthen the properties of magnesium alloys. In this fabrication process, we have used magnesium metal as a base element and the second element is fly ash cenosphere which acts like reinforcement. The process used for fabrication purpose is electric stir casting. The change in mechanical properties like hardness, tensile strength and nature of microstructure was observed.

Keywords:

Electrical Stirrer, Fly Ash Cenospheres, Magnesium Metal Matrix Composites, Mechanical Properties, Stir Casting

Prototyping the Embedded Devices for the Internet of Things (IoT)

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Dr. Sanjay Tejasve, Assistant Professor, MCA Dept., Govt. Engineering College Bikaner, Bikaner (Raj.)

Abstract:

The Internet of Things (IoT) is a conception to enable communication among internetworking applications and devices where physical objects or things communicate via the Internet. These things classified as identifying Communication devices with tagging their identification can be tracked, monitored, and controlled by remote computers and devices via internet connectivity. It ems in the IoT embedded devices are composed of electronic objects, sensors, software, and networking to allowed at a sharing to gain real and enhanced value and service. All are uniquely embedded in a

computer device that can communicate with in the current digital infrastructure. Through IoT, an umbrella can be made to operate as a living entity. By install ingatiny embedded device that interact swathe borcloud- based services via the

Internet to take the place of communication. here are many sectors where IoT based applications and services are Working very efficiently and continuing enhancing by adding more efficient embedded systems like in streetlights, traffic Signaling control, smart homes, ATMs, various automatic machines, predictive analytics, vehicles maintenance, parking monitoring, waste management, and incredibly in smart healthcare system in these days, etc. Each System needs electronic circuits for computation and communication. The courses use the sensors and actuator devices that embed computer hardware and software. Prototyping and designing involve built-in computer frame works to produce data. This also requires Internet connectivity through computation, transformation, and networking. This paper explores the proto typing the embedded devices for IoT by learning of critical terms of proto type designing for creating IoT based devices with an epigrammatic depictiono find ispensableembeddingfunction software and hardware to enable the System for specific dedicated application such as Boot-loader, IDE, Simulator, APIs, Deviceinter faces, Microcontroller unit and SoC etc

Keywords:

IoT, Embedded Devices, Smart Health care, ATMs Prototyping, BootLoader, IDE, Simulator, APIs, Microcontroller, SoC

Mixed Reality: A Tool to Teach Human Anatomy in a Virtual Classroom

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Dr. Lakshmipriya G G, Vellore Institute of Technology, Vellore, India

Abstract:

Mixed reality technology is considered to be one of the most sought after techniques for a virtual learning environment. Notably, the science subject includes complex topics that are difficult to explain with the usual multimedia teaching aids like images, video, or PowerPoint presentation in a virtual classroom. Mixed reality can elevate the teaching methods to cater to the students of this ultra-modern era. The motive of this study is to make the students use a custom-made Augmented Reality application before the session, and Microsoft's Mixed Reality Viewer during the online course to teach human anatomy, access the students' experience. This study was conducted with 31 students from grade 10 in a secondary school in Tamil Nadu, India. Teacher training Results suggest that the use of Mixed Reality techniques in a virtual classroom increases students' interest to learn, elevate their test scores, and decrease their anxiety levels. In addition to this, the students also showed their interest in experiencing Mixed Reality in all the other courses.

Keywords:

Mixed reality; online-learning; e-learning; anatomy; augmented reality.

Improvement of the energy efficiency of passive elements using smart sensors :IOT

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Abstract:

To optimize thermal performance of passive elements inside the building as a whole of its results is not yet achieved due to fluctuations and internal generation. To identify the energy need. This research work aims to improve the consumption behavior of a building located in the city of tangier. to automate and control this building. IOT allows to better exploit and collect the data of the building and consists in a simplified way in connecting the objects. this is the ability to interconnect the objects and make them interact with their physical environment, which also allows a good control of the behavior of active and passive consumers with regard to energy consumption

Keywords:

Energy efficiency, Internet of things, Energy consumption , PLC

Prediction modeling and optimization of compact methanol steam reformer using Gaussian process regression (GPR) and Response surface optimization

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Abstract:

This paper propose a new predictive model based on Gaussian process regression (GPR) algorithm with mattern 5/2 and mattern 3/2 kernel for estimating the yield of a methanol steam reformer. The input parameters consist of reforming temperature and feed rate while the target output includes methanol conversion, hydrogen production and carbon-monoxide generation. The high value of coefficient of determination ($R^2=1$) acquired indicates that the predicted rate of target output is strongly correlated with the observed value. The Least root mean square (RMSE) for methanol conversion and hydrogen generation is obtained by mattern 3/2 kernel and carbon-monoxide generation by mattern 5/2 kernel. Response surface optimization (RSO) optimizes the input parameter by maximizing the methanol conversion and minimizing the carbon-monoxide. The inlet feed flow rate of 29.3939cm³/hr. and reformer temperature of 239.798°C is been observed with the application of multiobjective optimization.

Keywords:

Response surface optimization (RSO), Gaussian process regression (GPR), methanol steam reformer, mattern 3/2 kernel and mattern 5/2 kerne

The Effect of Social Media on the Social Relationship Ties Among Faculty and Non-Teaching Staff Members of Isabela State University Roxas Campus

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Abstract:

Teaching and school-related works are high-stress professions where it's very important to have a good relationship with coworkers which leads to a more productive and collaborative atmosphere hence it is also good everyone's psyche. Today's world social media plays a vital role in connecting everyone's life, and relationship through online communication, postings, and reactions. A descriptive normative survey method was undergone in data gathering procedures such as observation, survey questionnaires, and interviews. This study focuses on the identification of the participant's age demographic profile and common active social media platforms used by the faculty and non-teaching staff in participating group discussion or interaction, determination of the level of awareness on the use of emoticons, common social media terminologies on social media across demographic groups, social media ethical practices and its implications towards their social relations. The participants were 70 Faculty and 57 Non-teaching staff members who are commonly working at one campus with three different sites and locations and evaluated thru 5 point Likert Scale. Most of the participant's belongs to the generations which are familiar on the use of computers and android cellphones where social media is easily accessible; Facebook is revealed to be the most familiar social media flat form for postings and sharing of both pictures and movies purposely for collecting social reactions while Messenger was used as communication media both for private and group communications. However, communication barriers are established among faculty and non-teaching staff members on the use of social terminologies and emoticons across demographical groups but generally social media has a positive effect on social relations.

Key-words:

Social Relations, Emoticons, Blog, Social Media Terminologies and Apps

Optimizing the Duration of the Wireless Sensor Network within Smart City

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Abstract:

The aim of this paper is therefore to propose new and efficient mechanisms for the optimization of the lifetime in "WSN: Wire- less Sensor Network", while guaranteeing, at any time of this lifetime, a good network connectivity. To achieve our goals, we have implemented and improved an algorithm called DSMAC (Distributed Scheduling Medium [5]. Access Control) which is based on the node placement method. In addition, DSMAC allows 100% coverage of the monitoring area, ensures good connectivity of the RCSF and also allows the sensor nodes to save up to 30% of their energy compared to other MAC protocols such as TunableMAC.

Spectrum Sensing and Resource Allocation Using Cognitive Radio Technique

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Abstract:

To meet the increasing demand of applications in wireless networks, a wide range of spectrum is required. Cognitive radio is an intelligent loom to improve the spectrum utilization in an efficient manner. The main technology behind CR is spectrum sensing that identifies the vacant holes and to allot the vacant holes for the secondary users in order to boost the allocation efficiency of radio resource. A survey of spectrum sensing methodologies used in CR is described in this paper. This paper also deals with the design and development of a technique to analyze and correlate spectrum allocation of secondary users using optimization problem of linear cooperative spectrum sensing techniques. The simulation tool used is Matlab, to learn the working performance of the proposed cognitive radio system.

Keywords:

Medium Access Control, Primary User, Secondary User, CR system, spectrum holes

Study of Behavior of Plastic Sheet under Various Nail Arrangements

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Abstract:

Soil nailing is a development procedure that can be utilized as an alternative measure to treat temperamental common soil slants or as a development system that permits the safe over-steepening of new or existing soil inclines. Bars introduced utilizing boring procedures are typically completely grouted and introduced at a slight descending tendency. Soil nail segments may likewise be utilized to settle holding dividers or existing fill inclines like banks and levees and this is ordinarily embraced as a remedial measure. The soil nails walls are a widely utilized innovation for holding vertical cuts, about vertical cuts in soil and any incline which is at a point more extreme than the dirt parameters would ordinarily allow. In the present research work we would study about the use of plastic sheet as a flexible material under different nail arrangements.

Keywords:

Facing materials, Flexible facing, Physical Model, Stability of slope

Water Conservation Methods In Thermal Power Plant

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Abstract:

Coal based thermal power plants are one of the most water consumption industries. Since water is most important source on earth, its conservation and effective utilization is necessary for sustainability of environment. Zero-liquid discharge is an advanced water treatment method includes ultra filtration and reverses osmosis. In this study show various types of methods are suggested to increase the cycles of concentration in thermal coal based power plant. The results reflects reuse and reduction in specific water consumption.

Design and development of several polymeric metal-organic frameworks, spectral characterization, and their antimicrobial activity

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Abstract:

Coordination polymers were obtained by the reaction of metal acetates, $M(\text{CH}_3\text{COO})_2 \cdot x\text{H}_2\text{O}$ {where $M = \text{Mn(II)}$, Co(II) , Ni(II) and Cu(II) } with AFP ligand (AFP = 5,5'-(piperazine-1,4- diylbis(methylene))bis(2-aminobenzoic acid)). The AFP ligand was prepared by the one pot, two-step reaction of formaldehyde, 2-aminobenzoic acid, and piperazine. Structural and spectroscopic properties have been studied by elemental, spectral (FT-IR, ^1H NMR, ^{13}C NMR, and UV-vis.), and thermogravimetric analysis. UV-vis. spectra and magnetic moment values indicate that Mn(II) , Co(II) , and Ni(II) polymer-metal complexes are octahedral, while Cu(II) and Zn(II) polymer-metal complexes are distorted octahedral and tetrahedral, respectively. The analytical data confirmed that the coordination polymers of Mn(II) , Co(II) , Ni(II) , and Cu(II) are coordinated with two water molecules, which are further supported by infrared spectra and thermogravimetric analysis data. The prepared polymer-metal complexes showed good antibacterial activities against all tested microorganisms; however, the AFP ligand was also found to be effective but relatively less than their polymer-metal complexes. Along with antibacterial activity, all the polymer-metal complexes exhibit significant antifungal activity against most of the tested fungal strains. The results of antimicrobial activity reveals that the AFP- Cu(II) showed the highest antibacterial and antifungal activity than other polymer-metal complexes.

Keywords:

Polymer-metal complexes, AFP ligand, Antimicrobial activity

A descriptive study on the Epidemiological Characteristics of Novel COVID-19 Outbreak in Kingdom of Saudi Arabia

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Abstract:

The emergence of the novel coronavirus known as COVID-19 have started on 2nd March 2020 in Kingdom of Saudi Arabia. Due to the outbreak of this pandemic worldwide and in the kingdom several awareness and precautionary measures were made in the kingdoms as well. Some of the COVID-19 patients are asymptomatic and this increase the spread of the virus. Furthermore, the long incubation time also one of the causes of this outbreak. Early diagnosis of the virus will increase the chance of curing the infection and decrease the mortality rate of the patient. The objectives of this study are to review the emergence, progression, epidemiology and management, precautionary measures used by the Saudi government to combat with the outbreak. Moreover, the study also discusses the symptoms, pathogenic structure, and transmission mode of COVID-19 pandemic. It also covers the gender, age, and nationality wise distribution of COVID-19 patients in Saudi Arabia.

Index Terms

Novel coronavirus, pandemic, COVID-19, epidemiology, SARS-CoV-2

Effect of Vegetation on the Slope Stability: An Analytical Approach

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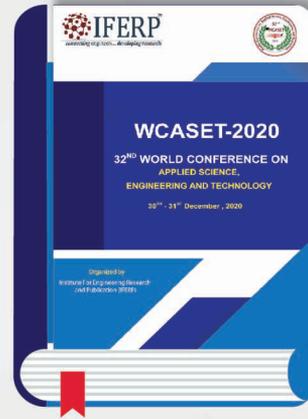
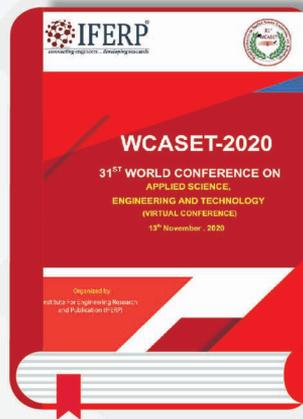
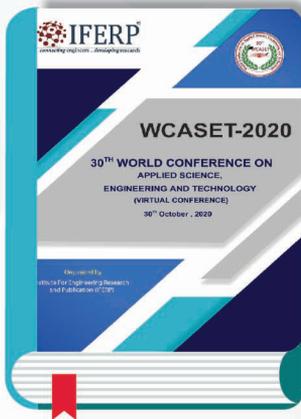
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Abstract:

There are several environmental factors which affect the stability of slope namely, pollution intrusion, rainfall, seasonal effects, tree roots, wind effect, etc. More recently, soil bioengineering has adopted the method of using vegetation to improve soil stability against erosion & failure. Vegetation can affect soil slope stability by either changing the soil moisture regime or contributing to soil strength by roots. This paper provides a critical review on the importance of vegetation for soil stability on a slope by simple analytical models that may be used to calculate soil reinforcement by the roots and water infiltration into the soil with the help of limit equilibrium method. For the analysis purpose, a real case of Chandil site near Jamshedpur has been studied on forested and clear-cut slope. The effect of the presence of vegetation on pore pressure due to change in water regime and reinforcement of soil by roots have been studied. Simple models have been made to evaluate the effect of evapotranspiration, suction relation on piezometric head in slope, root reinforcement and soil root interaction mechanism. Based on the root density and root geometry, the improved shear resistance of soil on slope in case of forested and clear-cut condition has also been determined. Some concluding remarks have also been made related to soil moisture suction and evapotranspiration on forested slope.

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