EEE003

OVERVIEW OF FACTS DEVICES FOR POWER SYSTEM STABILITY AND POWER QUALITY CONCEPTS

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Abstract

This paper proposes a review of various FACTS devices like STATCOM, UPFC for the enhancement of power system stability and power quality. The increase in power demand increases the interconnection of the power system of various types including the renewable energy source, so when power transfer grows, then power system becomes more complex and less secure and it may lead to large power flow with inadequate control, excess reactive power flow which affects the power system stability and quality. The cost-effective solution to these problems is to use FACTS (Flexible AC Transmission systems) devices. In this paper, two FACTS devices are considered namely STATCOM and UPFC, a 13 bus sample system is considered in which four buses are connected with wind energy system and other buses are considered as load buses, due to fluctuating nature of the wind the power quality issues generated are rectified using FACTS devices and its simulation has been carried out using MATLAB. The obtained simulation results are compared to the performance analysis of FACTS devices.

Keywords: Power system stability, Power quality, FACTS, STATCOM, UPFC.

EEE004

MONITORING AND CONTROL OF DISTRIBUTION TRANSFORMER

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Abstract

This paper gives the solution on monitoring and control of distribution transformer efficiently. At present, during fault in lines the transformer is turned off manually to rectify the fault and requires two field workers. Here we developed a wireless controlling system to open or close the transformer. The opening and closing of the transformer is confirmed by using CT (current transformer) and PT (potential transformer) measuring instrument. The data of the measuring instruments are sent through GSM (global system for mobile communication) to the EB officials and it requires only one field worker at the faulty location. The mainfeature of this paper is the field worker can be reduced, accident occurring due to back current at the time when the field worker work at the line can be reduced and the transformer switch can be controlled at remote location. This paper leads to the safety working of the field workers.

Keywords: Pulse Width Modulation, Potential Transformer, Current Transformer, GSM

EEE005

MICROCONTROLLER AND GSM BASED WINDMILL MONITORING SYSTEM

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Abstract

The paper deals with the design and development of embedded system using GSM technology. The developed instrument is installed in the windmill. An interfacing GSM module is also connected to the microcontroller to send the message to windmill owners mobile. The main concept in this design is introducing mobile communication into embedded system. The energy produced in the windmill is displayed on the energy meter. The energy meter reading is a digital code which will be fetched out by parallel cable and sent to microcontroller and it is transmitted to mobile using GSM module. The controller checks for the valid input code sent from the phone, if the code is valid the data is sent to the owner's phone.

Keywords—gsm; microcontroller; windmill; embedded system; energy meter.

EEE006

INTERNET OF THINGS BASED SOLAR POWERED TRUCK

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Abstract

With increase in number of commodities and population, complexity of delivery process also has increased considerably hence it has become a necessity to imbibe automation in the process of delivery. In this project Smart Delivery Truck has been designed which is controlled using a mobile phone through Internet of Things (IoT). The Truck is designed in a more secure way such that only authorized persons can access the products inside the truck. This is achieved by capturing the face of the customer who wish to access the product and compare with the database to recognize the face. Once face is recognized a mechanical box will be opened automatically through which product can be taken out by the customer. Once the face is recognized and after delivery, a mail is sent to the seller as a confirmation. Web-Camera is used to capture the face of the customer and to assist in driving of truck by live streaming on-road condition. The controller is Raspberry Pi 3 Model B. The motion of the truck can be controlled by using a mobile phone or by a computer by sharing common Internet Protocol (IP) address between the controller and mobile/computer. Commands are given from computer from remote place to control and drive the truck to the required destination of the customer. Open CV with Haar Cascade library is used for recognizing the features of the face. Solar power has been used to power the truck. There are two batteries, one is utilized to power the truck and other battery is used as back up protection which is charged by the solar power. The effectiveness of the proposed system are verified in prototype model.

Keywords: Internet of Things (IoT), Internet Protocol (IP), Raspberry Pi 3 Model Based Controller, Haar Cascade library.

EEE007

A NOVEL METHOD AND IMPLEMENTATION OF DIGITAL ALGORITHM FOR FIRST ORDER NON LINEAR SPHERICAL TANK LEVEL CONTROL PROCESS WITH AN INTEGRAL WINDUP

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Abstract

The primary objective of the process control is to control, monitor and maintain different kinds of process at the desired operating conditions for improving the productivity and product quality. In industries most of the process are non - linear, controlling such type of system is difficult. So, spherical tanks are one among the non-linear systems which can be used to store maximum quantity of product in minimum area. These types of non-linear systems violate the superposition principle and are very difficult to control and monitor. Generally, conventional PID Controller is used for controlling a process in a plant. In Level control process, there exists the sudden change in final control element which leads to maximum overshoot and larger settling time, this stated phenomenon requires tuning of gain values to control the process variable to the set point. In order to overcome the above-mentioned problem, Anti reset windup concept is preferred. The mathematical modelling of a given process is obtained using black box system identification methodology. The accuracy in controlling the process variable is complicated due to its dynamic behaviour and characteristics. So in order to maintain the proper characteristics for the non-linear system the mathematical modelling is to be obtained by conducting the open loop test. In ancient stage the Ziegler Nicholas method is implemented to tune the PID parameters such as Kp, τi and τd which takes larger settling time, maximum Integral Square error and maximum peak overshoot. After tuning the PID gain values with the help of anti reset windup, the overshoot and settling time will be reduced. In this proposed work, Deadbeat and Dahlin's Algorithms are used to convert the transfer function of the level process from 'S' domain to 'Z' domain (digital controller). The transfer function is used in MATLAB (Matrix Laboratory) to analyse the output of level process and the simulations are taken for the plant with above mentioned two different algorithms. For real time interface the LabVIEW platform is used and the results are discussed. This proposed digital controller with anti reset windup provides lower steady state error, minimum peak overshoot and minimum error criteria indices.

Keywords—Spherical tank, Integral windup, PID, Deadbeat, Dahlin's algorithm, MATLAB, LabVIEW

EEE008

IMAGE PROCESSING BASED PRODUCTION FLAW DETECTION IN KNITTING

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Abstract

One of the major problems in production is that the number of faults occurred while producing a fabric since it directly influences productivity. To overcome the losses, this paper provides a system with special surveillance of the knitting process to detect, identify and locate faults during production, by monitoring the fabric. The system also gives the user a valuable set of data related to production. This study has shown that image processing has huge potential to produce reliable measurements for identifying the flaws in the fabric. The flaw detection was automatically tested comparing fabric images captured by a digital camera. Therefore, the developed system is capable of stopping the circular knitting machine by using the processor as soon as a defect is captured by the web camera.

Keywords—Image processing, Circular knitting machine, Web camera.

EEE009

A CHARGE CONTROLLER TECHNIQUES FOR SOLAR PV SYSTEM

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Abstract

In rural electrification the PV system plays an important role. Due to high costs of stand alone PV battery systems and the large number of available solar charge controllers it is important to select a suitable controller for each application. In Solar Home Systems and inverter systems as well as in some PV hybrid systems solar charge controllers are the central control unit regulating the overall energy flow within the system. Therefore it is a central and critical component which has to be selected carefully. Meanwhile several topologies dominate the world market. The functions of charge controllers are low voltage disconnection (LVD) to protect the battery from deep discharge and high voltage disconnection (HVD) to protect the battery from overcharging. In addition to this a solar charge controller should have a good battery state of charge calculation (SOC) in order to be able to monitor the battery status. A good battery management can be applied with the help of those functions. This paper presents a new technology based solar PV charge controller which contains series and shunt charge controller.

EEE010

A HIGH VOLTAGE RATIO DC-DC CONVERTER WITH REDUCED INPUT CURRENT RIPPLE

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Abstract

The depletion of fossil fuel reserves and increased energy demand led to search of renewable energy resources. There are various renewable sources are available. Among these, the solar PV is most commonly used. In this paper a new converter topology has been discussed. There are two stages of conversion. In first stage, converter with high static voltage gain with reduced voltage stress is achieved. In second stage, the voltage gain of the converter is further improved with reduced conduction losses. This paper presents a cuk converter integrated with Boost and SEPIC converter. The design parameters of proposed DC-DC converter topology is discussed in this paper and the results are verified by MATLAB simulation.

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EEE011

SMART GRID ARCHITECTURE MODEL – INDIA AND GERMANY – A REVIEW

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Abstract

The smart grid is modernization system for traditional electric distribution system, smart grid is a novel solution of future infrastructure. It is used to monitor, protect and auto optimize the electric operations from high voltage network to distributed system. The smart grid is a combination of information and communication technologies, distribution and transmission system. The existing traditional grids are under pressure and faced diversified issues. There are many differences between traditional and smart grids such as two way operations instead of one way operations, self-monitoring capabilities, cyber secure communication, computational intelligence, safe, cost-effective environment. Number of literature discussed the positive features of smart grid for power systems In this paper discussed about the review about Grid Architecture model through the Function Layers mapped on Domains and Zones.

Keywords- Smart Grid; Structures; NIST; Smart Grid Architectural Model

EEE012

SMART IRRIGATION SYSTEM USING IOT AND IMAGE PROCESSING

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Abstract

Today the farmers are finding difficulty in monitoring the field about moisture content and temperature of the field. Hence, this project is developed to monitor the farms using the concept of Internet of Things (IoT) and Image processing. The solar panel is used in our project toutilize the renewable energy which acts as an uninterruptable power sources. The Battery is used to store the energy from the Solar panel via Charge Controller (MPPT). The Soil moisture sensor and the Humidity sensors are used to monitor the moisture content of the soil and also the temperature and humidity of the surroundings. The DC Pump can be controlled automatically (switched ON/OFF) by the Arduino, Ethernet shield and Relay, based on the soil moisture and the temperature level. These data'sand the condition of the DC Pump are send to the BLYNK ANDROID App to monitor the farms and lands by simply login to our account, and the condition of the DC Pump is also notified to the user Email with the help of internet connections by using Arduino and Ethernet shield. In image processing technique the health condition of the crop is intimated to the user with the help of Raspberry pi and webcam. The Raspberry pi captures the images of the crops and checks the images of the crops to detect its health condition whether it is infected or in Healthy condition. And the condition of the crops is intimated to the user by sending its images and health condition of the crops by E-mail notifications. This can be monitored from any part of the world.

Keywords – MPPT (Maximum Power Point Tracking), IoT (Internet of Things), DC (Direct Current)

EEE013

CUSTOMER'S CHOICE BASED INGREDIENTS SELECTION AND MENU ORDERING SYSTEM

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Abstract

Customary strategy that is normally been utilized in lodgings is by taking the client's requests and recording it on a bit of paper. The present time is said to be the universe of innovation. Such huge numbers of endeavors have been taken by eateries proprietors likewise to receive data and correspondence advances, for example, PDA, remote LAN, exorbitant multi contact screens and o forth to improve eating knowledge In the majority of the eatery dinner requesting is depending on the association with servers to put arrange into the kitchen. In occupied long stretches of eatery this coordination is a test result in fulfillment to the client. To understand this, Intelligent Restaurant is planned. Dinner Serving Robot and database to enhance nature of administrations of Restaurant and to improve clients' eating background. Some systems use wireless technology where wireless application is user-friendly, improves efficiency and accuracy for restaurants by saving time, reduces human errors and provides customer feedback In this field, contact screen based propelled menu show and requesting framework idea is another creative thought where the customer can give his ingredient selection choice for the food that is to be ordered in the restaurant

Index Terms—hotels, restaurant, food, systems, applications

EEE014

A REVIEW ON MULTI AREA LOAD FREQUENCY CONTROL METHODS IN RESTRUCTURED ENVIRONMENT

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Abstract

Power System is a highly complex interconnected network, which is nonlinear and dynamic. In competitive bilateral network, GENCOs schedule power based on the contracts made with the DISCO. Hence, maintaining system stability and reliability is a big challenge. Therefore, Load frequency control (LFC) is an important and critical issue in restructured Power Market. In multi-area power system the imbalance between generation and demand results in undesired deviations of frequency and inter control area (CA) tie-line power variations. Ultimately, the generators lose synchronism leading to system collapse if these variations are prolonged. LFC plays a vital role in tracking the frequency and tie-line power during load variations and thus maintain the real power balance and security of the system at steady state. This paper presents the literature review on LFC methods adopted under restructured environment along with conventional sources, Renewable Resources, Electric vehicles (EV's), etc., Case studies are discussed to illustrate the literature review on LFC techniques. At last, the challenges, key issues and significance of these methods in the restructured environment have been highlighted.

Key words: Bilateral Load Frequency Control (LFC); Control Area; Real Power Control, Restructured Power Market, vehicle-to-grid (V2G), electric vehicles (EV's).

EEE015

DESIGN OF BOOST INVERTER FOR SOLAR POWER BASED STAND ALONE SYSTEMS

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Abstract

This paper presents a new ideology called as boost inverter which converts input DC supply into AC directly without using any filter circuit. The main part of today's research work is to use solar energy efficiently. While using for AC autonomous loads, the output from the solar panel should not suffer any losses during the various power conversion stages. The conventional voltage source inverter, which is currently in usage, produces an AC output voltage lower than the DC input supply and thus it requires another power conversion stage. It can be used to drive the loads only after removing the ripples using a filter. The main objective of the project is to produce an AC output voltage higher than the DC input voltage in a single stage. Thus the number of power conversion stages is reduced by using boost inverter circuit. Since Pulse Width Modulation technique is used to drive the circuit, the requirement of a filter at the output is not needed.

K*eywords*:*Solar energy, Boost inverter, Pulse width modulation, Filter.*

EEE016

PERFORMANCE COMPARISON OF MPPT CONTROLLER FOR SOLAR PV SYSTEM WITH FUZZY LOGIC AND NEURAL NETWORK

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Abstract

This paper presents a new ideology called as boost inverter which converts input DC supply into AC directly without using any filter circuit. The main part of today's research work is to use solar energy efficiently. While using for AC autonomous loads, the output from the solar panel should not suffer any losses during the various power conversion stages. The conventional voltage source inverter, which is currently in usage, produces an AC output voltage lower than the DC input supply and thus it requires another power conversion stage. It can be used to drive the loads only after removing the ripples using a filter. The main objective of the project is to produce an AC output voltage higher than the DC input voltage in a single stage. Thus the number of power conversion stages is reduced by using boost inverter circuit. Since Pulse Width Modulation technique is used to drive the circuit, the requirement of a filter at the output is not needed.

Keywords:*Solar energy, Boost inverter, Pulse width modulation, Filter*.

EEE017

HIGH VOLTAGE DC GENERATION USING COCKCROFT WALTONMULTIPLIER CIRCUIT

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Abstract

The objective of the paper is to design a voltage multiplier which should be able to multiply voltage from an input as low as 12 Volts to a maximum output of approximately 200 Volts. As High Voltage DC (HVDC) transmission is becoming more popular in the present scenario of bulk power transmission over long distance transmission, it is required to study the testing of various insulation materials at laboratory level in under graduate and post graduate course curriculam. Generation and handling of high voltage is very dangerous and requires skilled personnel in the laboratory. In addition, it is very much costly. Cockcroft-Walton multiplier provides suitable high DC voltage source from a low input voltage i.e. 230 V AC voltage which is rectified by using half wave rectifier circuit. In this project the ripples are reduced during the production of voltage. Designing of the circuit is based on Cockcroft Walton Principle that consists of ladder network of Capacitors and Diodes. Other specifications considered carefully while designing multiplier circuit and components have been chosen based on size consideration for expected load current and expected output voltage. The simulation of the entire circuit for production of high DC voltage is carried out in MATLAB simulation platform and the results were taken.

Key words: high voltage, dc, voltage multiplier circuit, cockcroft-walton multiplier.

EEE018

A REVIEW OF DIFFERENT MAXIMUM POWER POINT TRACKING (MPPT) ALGORITHMS FOR SYSTEMS CONNECTED WITH SOLAR PHOTOVOLTAIC PANELS

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Abstract

This paper presents a new ideology called as boost inverter which converts input DC supply into AC directly without using any filter circuit. The main part of today's research work is to use solar energy efficiently. While using for AC autonomous loads, the output from the solar panel should not suffer any losses during the various power conversion stages. The conventional voltage source inverter, which is currently in usage, produces an AC output voltage lower than the DC input supply and thus it requires another power conversion stage. It can be used to drive the loads only after removing the ripples using a filter. The main objective of the project is to produce an AC output voltage higher than the DC input voltage in a single stage. Thus the number of power conversion stages is reduced by using boost inverter circuit. Since Pulse Width Modulation technique is used to drive the circuit, the requirement of a filter at the output is not needed.

Keywords:*Solar energy, Boost inverter, Pulse width modulation, Filter.*

EEE019

HUMAN DETECTION ROBOT

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Abstract

This project aims to give a practical design to build the first and simplified version of a rescue robot which has to be active within disaster areas like collapsed buildings where rescue teams cannot operate due to a lot of technical difficulties. Human detection for rescue purpose is normally carried out by humans in such conditions, but when there is a risk of collapse or hazardous environment it will better to utilize some high tech equipment to achieve that mission rapidly and effectively. It can operate virtually in any place, By the way it can climb over small obstacles and can fit into small holes in which no human rescue team member can get into that. So we had implemented a microcontroller based robot.

Keywords: Robot, Disaster, Microcontroller based robot

EEE020

A SURVEY ON KCT CAMPUS FOR GREEN BUILDINGCERTIFICATION

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Abstract

In this paper, the concept of Green Building has been employed through the process of energy auditing. Green Building is the term used for a system which is efficient in all energy aspects-a sustainable system .In the existing buildings the major problem is that they are not sustainable.The inefficient use of the resources such as electricity, water etc., has led to the wastage of energy and increased monthly bills. This paper presents a preliminary survey on the various power consumption and has identified the areas that consume more energy and has suggested solutionsbased on recommendations given by Indian Green Building Council(IGBC).Hence, the MAHALINGAM VIGYAN BHAVAN in Kumaraguru College of Technology (KCT) campus was surveyed, analysed in energy consumption aspects for a better change in operation and economical wise. This paper will provide a base report if KCT wishes to apply for any Green building certifications.Visual Charts of the yearly power consumption and the yearly bills, calculation of the various loads have been made by walk-through Energy Audit. Estimation of payback periods and implementation costs have been proposed and given some recommendations.

Keywords— Energy audit, Energy Consumption, Energy conservation, Estimation, KCT, IGBC

EIE001

ENERGY MANAGEMENT SYSTEM USING ANN BASED LP APPROACH

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Abstract

This paper introduces an advancement technique to the interest side Energy Management System (EMS) of a given shopper (e.g.an modern compound or college grounds) concerning hourly power costs. This paper considers a bunch of interconnected cost responsive requests in an Academic Campus. The requests can be provided through the fundamental framework and stochastic Distributed Energy Resources (DERs, for example, wind and sun based power sources. What's more, the group of requests possesses a vitality storeroom. The proposed EMS has capacity that every shopper can utilize their own procedure to direct the present load and costs in the power dissemination framework. To tackle this EMS issue and advancement calculation dependent on Linear Programming (LP) approach has been executed. Notwithstanding LP calculation an Artificial Neural Network was connected to foresee the future power utilization of the bunch of cost responsive requests. The goal of the proposed strategy is to boost the usage of the group of requests when it is subjected to an arrangement of compels. This LP calculation enables the bunch of interest to purchase, store and pitch vitality at reasonable occasions to alter the hourly load level. To assess the execution of the proposed calculation an IEEE 14 transport framework was considered. The outcomes demonstrates that the bunch of requests of vitality administration framework utilizing the proposed methodology expanding the effectiveness and limiting the misfortunes than the current strategies.

Keywords- Energy management system, demand response, distributed energy resources, neural network, real time pricing.

EIE002

IMPLEMENTATION OF NI OPC AND LAB-VIEW COMMUNICATION USING SIEMENS S7-1500 PLC FOR BATCH PROCESS

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Abstract

Batch process is widely applied in paint, food and beverage industries etc. In Batch process specific amount of input feed is passing through desired set of equipment for a specified amount of time to get a definite amount of valuable output product. In industries advanced control schemes are implemented through DCS (Distributed Control System) and PLCs (Programmable Logic Controller). For communication with different make controller's user can use various communication protocol such as Modbus TCP, Modbus RTU, Ethernet, Profibus, Profinet etc. In this experiment NI OPC and Lab-View communication protocol are used for communication to 1500 PLC controlled batch process from remote. Data analysis is carried out through which the system carry on the real-time monitoring to the scene, and realize the automation control. This system is very important to study bus, distributed system and PLC. It is channel to research on automation control system.

EIE003

VIRTUAL QUALITY TESTING OF PUMPS

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Abstract

The wide application of pumps ranges from agricultural, domestic, chemical, industries etc. It is essential to test the basic parameters of pumps to provide an expediency.Pump testing should be carried out at a precised rate and also as it is resolute. In the present scenario, pump testing is done using - manual methods, analog measurements or firm test bench measurement.

In this proposed system, real time display of the test data can be displayed. Different types of reports reminiscent of production register, performance register can be generated to have an overall view of the production. Thus, automatic pump test system takes care of all aspects of record observance for pump testing.

Automatic quality testing of pumps using LabVIEW is a complete solution for pump testing process in pump manufacturing industry. The endeavor of the automatic pump testing system is to remove the human errors associated with testing of equipment. LabVIEW provides quick and reliable method of performing repeated tests that yield consistent data. Composition of the test system and related data incorporated into the graphical program can automatically generate device specific data points. The proposed data acquisition system under consideration can be used to measure both electrical and non electrical parameters. The automatic testing of the pump -set characteristics is realized easily by giving the relevant data to the program.

EIE004

EXPERIMENTAL CHARACTERIZATION OF ORIFICE AND MAGNETIC FLOW METER FOR DIFFERENT FLOW MEASUREMENTS USING SCADA

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Abstract

The Design of larger facilities system is generated by the behavior of small industrial unit called as pilot plant. They do so in several ways of computer simulation method used to determine the limitations of the pilot scale system. In this model it can characterize the orifice and magnetic flow meter for different inflow of the liquid measurements. With different inflow measurement the measurement of accuracy, hysteresis, set point, rise time, reproducibility, sensitivity, linearity etc can be identified. The proposed method will characterize the static and dynamic response of the orifice and magnetic flow meter.

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EIE005

TEMPERATURE PROCESS CONTROL USING YOKOGAWA DCS CENTUM VP

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Abstract

In process control industries, automatic controllers are most widely used. The utmost purpose to make use of automatic controllers is to achieve the required stable performance. Hence industries demand a controller which can give a required stable performance despite the effect of uncertainties. Designing a controller for such kind of industrial processes is a complicated task due to the uncertain environment in industries and high interaction between the sub processes. Thus a robust and reliable controller is required for industrial applications.Recently, International Society for Automation (ISA) has reported that 90% of industries have used PID controller because of its simple structure and acceptable performance. Also, PID controller having the flexibility to retune its parameters even the model order is changed. These advantages make the PID controller popular in the industrial applications and recent researches are focused in improving the PID controller's performance.Many process industries are in the position to monitor and control different processes in their manufacturing process at the same time of instance. Global monitoring and controlling of all the processes at the same time of instance will definitely lead to increase in the process productivity and plant safety. Thus Distributed Control System (DCS) and centralized monitoring are the key factors to ensure the process productivity and plant safety.This paper aims to enhance the flexibility in controlling and monitoring of a temperature process unit located in a remote access by configuring and developing a Human Machine Interface (HMI) using Distributed Control System (DCS). The field output from the temperature process unit located in the remote location is been fetched and these parameters are sent to the Field Control Station (FCS) where the control action is performed by the Distributed Control System (DCS) and the monitoring is done centrally in the Control room. Thus the temperature process control is been done using DCS.

EIE006

REAL TIME CLOSED LOOP CONTROL OF INTERACTING FOUR TANK SYSTEM USING LABVIEW

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Abstract

The Quadruple design is a well-known multiple input-multiple output (MIMO) system suited for various analysis of control schemes used in real-time which have nonlinear dynamics. Implementation and analysis of process control for this system is more complicated due to variations in process dynamics. In this paper a control design based on Fuzzy FOPID (Fractional Order Proportional-Integral-Derivative) controller is implemented for a two tank interacting system setup in real time using LABVIEW. It is observed that this fuzzy based FOPID controller gives better performance in real time compared to conventional controllers like PID, FLC. A comparison is made between real time control of PID controller and fuzzy FOPID controller.

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EIE007

EEE - ENGINEERING, ENGLISH AND EFFECTIVE COMMUNICATION

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Abstract

The ongoing debate in the current scenario is the employability ratio of the graduated engineering students. A number of students having very good percentage of marks are not good enough to be employed. One of the reasons for this is that they lack the skill for effective communication. The reasons for their inability to communicate effectively many be many. But it primarily rests on their inadequacy in communicating in English. Though many students have realized this, the lack of proper aid leaves them in a helpless state. This paper attempts to find simple solutions to the stated problem.

Key words - employability, inability, effective communication, English.

EIE008

ENHANCEMENT OF THE THERMAL EFFICIENCY IN THE DISTILLATION COLUMN

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Abstract

Wax temperature control is a challenging problem because of severe disturbances. Hence the disturbance parameters for the control loops in wax molding unit were identified and in order to achieve a satisfactory performance in its operation, a suitable control methodology was proposed. The wax molding outlet temperature control was improvised using multivariable control considering inlet temperature in four passes as disturbance parameter. PID control was used considering inlet and final temperature into the wax molding as disturbance parameter to improvise tray temperature control. A Labview based independent control system to be developed which can measure the disturbance and automatically correct the accordingly. We suggest that the overhead condensate temperature control will suppress the disturbance as it has had the chance to affect the temperature.

EIE009

PERFORMANCE ANALYSIS ON FUZZY GAIN SCHEDULING CONTROLLER FOR DISTILLATION COLUMN

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Abstract

Distillation is a practise in which a fluid or vapor blend of atleast two substances is isolated into its component fractions of desired purity by application and expulsion of heat. Distillation control is an interesting multivariable problem and improvement in distillation control has a potential to considerably increase the profit. The performance of the system can be improved by online tuning of gains of PID controller in cascade control. The fuzzy gain scheduling (FGS) controller tunes the gains of PID controller and is applied to control the temperature which in turn reduces the steady state error.The simulation performances of controllers are analysed using MATLAB software. The effectiveness of the PI/PID, FLC, FGS controllers in the aspect of Rise time, Peak time, settling time, peak overshoot and steady state error are observed. The performance is analysed with various reference levels.

EIE010

AUTOMATIC IRRIGATION SYSTEM USING RPI – IOT

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Abstract

In tropical countries, the temperature is very high and evaporation is more rapid. So, the automatic irrigation is necessary for ample supply of water and to prevent scarcity of water in the dry winter season. To achieve the benefits of the ecosystem such as water and solar energy conservation the efficiency of irrigation system must be improved. By using modern technologies to control the water level of farming and providing the automatic fertilization as per the nutrition requirements in the plants. The use of organic fertilizers may lead to a reduction in the use of chemical fertilizers such as pesticides, insecticides, chemical manures etc. The automation of the process is further induced by using WI-FI module which will lead to control the process from various distances apart. The manpower is ultimately reduced by subsequent improvement in the drip irrigation system. The ultimate aim of the project is to improve the quality and quantity of the irrigation system. This proposed system has overcome limitations of previous systems like distance problem, range problem.

Keywords: - IoT, Microcontroller, sensors, Rpi, irrigation system.

EIE011

FREQUENCY ERROR TIMING ANALYSIS IN PID CONTROLLER

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Abstract

Power consumption has become very critical in circuit-level timing analysis in PID controllers. Razor Flip Flop is a major vital role to detect the time errors in critical path circuit. Integrated Sequential circuits are occurredin time error by voltage scaling in supply voltage. In this work, we proposed the method Razor II Clock gated Flip Flop (R-II CGFF) by using Pulse-Triggered Flip-Flop. R-II CGFF is compared with previous work such as SDFF, HDFF,andClocked CMOS(CCMOS). This approach reduces the timing error and increases the robustness in Integrated Sequential Circuits. R-II CGFF is mainlycontributing to high-precision, high-speed, power reduction in static and average power consumption in PID controller. This technique is suitable for low power and data communication in PID controller. Results are validated by simulations, 74% of power reduction occurs compare to conventional design, by using IBM 130nm with 1.8 supply voltage.

Keywords: PID, Pulse triggered FF, Razor, Timing error

EIE012

OPTIMIZATION OF ENERGY MANAGEMENT OF A HYBRID PHOTO VOLTAIC /WIND/BATTERY/ DIESEL GENERATOR SYSTEM USING FUZZYLOGIC TECHNIQUE

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Abstract

The conventional energy sources are being depleted while at the same time the energy demand is growing, so it is important to consider non-conventional energy generating techniques to meet future energy demands. The Stand-alone microgrid comprises of Photo Voltaic /Wind/Battery / Diesel Generator and battery as an energy storage system. This paper discusses energy management and control algorithms of microgrid with energy storage system. The Energy Managementis done by explaining an algorithm based on the fuzzy logic system, which allows us to optimize the management of the storage system, ensuring a longer battery life, and the energy distribution available from the photovoltaic array, wind, diesel generator,and the batteries. A fuzzy control strategy for battery charging or discharging used in a renewable power generation system is analyzed in the paper. To improve the life cycle of the battery, fuzzy control manages the desired state of charge (SOC). The proposed fuzzy logic controller scheme utilizes Pulse Width Modulation (PWM) technique to regulate the maximum output power from the interleaved boost converter and simultaneously controls the charging process of the battery. The microgrid system is designed using MATLAB/Simulink and the results are verified.

K*eywords: Fuzzy Logic system, Interleaved Boost Converter, PWMtechnique, state of charge*

EIE013

EFFICIENT WIRELESS POWER TRANSFER USING FAR FIELD TECHNIQUE

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Abstract

Wireless charging brings forward several new challenges in designing energy efficient wireless sensor networks. This work proposes the application of wireless power transfer (WPT) using far-field technique for charging sensors and electric-powered Unmanned Aerial Vehicles (UAVs) like drones. Far-field (radiative) technique can transport energy over long distances being aimed at the receiver. A rectenna design for an input power of 30 dBm is proposed to work at 2.45 GHz. Two topologies are analysed, i.e., Radio Frequency (RF) Combining Circuit (RFCC) and Direct Current (DC) Combining Circuit (DCCC). It is seen that the efficiency of the DCCC is 64.9 % and that of RFCC is 70%. Rectenna Topology Indicator (RTI) is computed for performance analysis of the two systems. RTI > 1 is observed and hence RFCC topology has better performance than the DCCC topology. Circuit design and Simulation has been implemented using NI AWR Design Environment and results show that RFCC works better compared to DCCC and provides a good throughput with the maximum power transfer condition. The design has been extended for multiple antenna elements with RF switch to route high frequency signals through transmission paths providing better efficiency and steady output.

Keywords: Wireless Power Transfer, far-field, micro-strip, rectenna array, Radio Frequency Combining Circuit (RFCC), Direct Current Combining Circuit (DCCC), Rectenna Topology Indicator (RTI).

EIE013

PROCESS AUTOMATION FOR pH MONITORING AND QUALITYCONTROL IN SUGAR INDUSTRY

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Abstract

The quality of white sugar is depends on the important parameter of pH Valve of sugar cane juice in Clarification process in sugar manufacturing industries. It is a highly non-linearity process the pH has makes an impact of affecting the quality of white sugar. So that an automatic control has been developed to maintain the pH parameter and stabilize the clarifying process using PLC and SCADA system. On line estimation of pH valve is to be measured and implementation of PID control using PLC. PLC Control is implemented to automatic control in clarifying process of sugar juice based on relevant error values of on line pH parameter from clarification process. The pH being non-linear in nature, implementation of PID control using PLC logic method was used to optimize and control the neutralized pH value in the clarifying process of sugar juice. The SCADA has been developed to monitor throughout the process. This has been great impact on the result of stabilising the clarifying process and enhancing the quality of the purified juice and lastly enhancing the quality of white sugar.

Keywords :pH,PLC,PID,SCADA,VFD

EIE014

COMPARATIVE ANALYSIS OF CONTROLLING TECHNIQUES FOR HIGH GAIN DC-DC BOOST CONVERTER

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Abstract

Control of power converters becomes significant inemerging area of Power Electronics which includes the controlof DC-DC converters for different applications likeelectric vehicles, battery chargers etc.Regulated output voltage irrespective of variations in DC input voltage and the load current, can be achieved by proper switching. The advantages of boost converter are low input current ripple, faster transient response, high efficiency and improved reliability. The performance of DC-DC boost converters can be improved as better components are being developed. This encourages investigations in the area of controllers, that requires a proper model of the system.This paper focuses on the comparative analysis of different linear and nonlinear control techniques for DC-DC boost converterssuch as current mode control, PID control, sliding mode control, fuzzy control and hybrid control.

Key words: Boost converter, linear and non-linear control, comparative analysis

EXEN001

THE STATUS OF WOMEN IN THE 21st CENTURY

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Abstract

Women are not born, but made. What better than India to exemplify this statement by Simone de Beauvoir. With the whole world celebrating International women's day with great pomp and show, it would be only apt to analyze the position and space Indian women occupy today, and comparing it to the time 60 years ago when the country had just gained independence. With women participating in nationalist movements, to being pushed into the domestic household space, to their resurgence as super – women today, women in our country have seen it all.

There have been innumerable debates about gender in India over the years. Much of it includes women's positing in society, their education, health, economic position, gender equality etc. what one can conclude from such discussions is that women have always held a certain paradoxical position in our developing country.

While on one hand, India has seen an increased percentage of literacy among women, women are now entering professional fields, the practices of female infanticide, poor health conditions and lack of education still persisting still continue. Even the patriarchal ideology of the home being a woman's real domain and marriage being her ultimate destiny has not changed much. The matrimonial advertisements, demanding girls of the same caste, with fair skin and slim figure, or the much criticized fair and lovely ads, are indicators of the slow changing social mores. If one looks at the status of women then and now, one has to look at two sides of the coin; one side one side which is promising, and one side which is bleak.

When our country got its independence, the participation of women nationalists was widely acknowledged. When the Indian Constitution was formulated, it granted equal rights to women, considering them legal citizens of the country and as an equal to men in terms of freedom and opportunity. The sex ratio of women at this time was slightly better than what it is today, standing at 945 females per 1000 males. Yet the condition of women screamed a different reality.

Keywords: *Simone de Beauvoir, Patriarchy, Paradoxical position, Women Nationalists.*

EXEN002

METHODS OF EMERGING INSCRIPTION SKILLS

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Abstract

"Start writing, no matter what. The water does not flow until the faucet is turned on."— Louis L'Amour. Some of us may wonder why it is not enough to teach our students how to speak English adequately: won't they then obviously be able to write it? Not necessarily, for writing is not simply speech written down on paper. Learning to write is not just a "natural" extension of learning to speak a language. We learnt to speak our first language at home without systematic instruction, whereas most of us had to be taught in school how to write that same language. Many adult native speakers of a language find writing difficult. The two processes, speaking and writing, are not identical. This paper deals with the methods of emerging writing skills.

Keywords: *Writing, approaches, communicative approach, relevance of communicative approach, process.*

EXEN003

ACTIVITY CENTERED LANGUAGE TEACHING

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Abstract

Language acquisition draws vast attention and fervent interest among learners across the globe irrespective of the culture and region due to its intensity and necessity in the present scenario. It has been receiving lots of progressive steps to be reared with more modifications and renovations using variety of techniques and methodologies which are focal parts in earning the aspects of language. This pivotal part is laid in the hands of teachers who are the real change makers in bringing out the revolution in language classrooms. Activity based language teaching methodologies are the identified tools to change the classroom from traditional setting to modern one such as learners can actively walk around the classroom, discuss with peer learners, and write their ideas on the board instead of sticking in their place, listening to facilitator or looking at board for explanation.

Keywords:*language acquisition, activity based language teaching, renovations*

EXEN004

ICT IN ELT FOR A VIBRANT LEARNING

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Abstract

Teaching leads to pleasure always. Teaching through technology multiplies the pleasure. The interest of students and teachers do not remain slumber in the classroom on using ICT tools. It is not that conventional method of teaching is a boredom or outdated pedagogy but it is the base. ICT tools in teaching grow on the base and emerge as a beautiful building.

One could be a creative teacher, but to channelize one's creativity, a mode is needed. ICT tools are such modes for properly channelizing a teacher's creativity. Teaching- Learning becomes blissful on working with ICT

tools. There are a lot number of ICT tools which can be used for free of cost. This research study is intended on the exploitation of ICT tools in English teaching classrooms and disseminating information and imparting knowledge to kindle the skill sets of the students.

ICT tools such as Google Classroom, Myklassroom, Kahoot! are some of the effective teaching tools which can be used to make learning and understanding a better one. Accessibility to such tools need not require high end configuration gadgets and computers, but one's hand phone or smart phone with internet is much enough. Learning and answering through ICT tools create a competitive spirit and light-heartedness. It is not that things are done beyond the horizon with ICT tools but an extension of the learning horizon. As literature aims at instructing and delighting, ICT tools too do the same in all the contexts. The usage and benefit of some ICT tools in detail would be the contents of the full paper.

Keywords:*ICT tools, creativity, information, imparting, teaching, learning*

EN001

CURRICULUM IN AN AUTONOMOUS ENGINEERING COLLEGE: IS IT AN EMPLOYABLE CURRICULUM?

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Abstract

Educational institutions world over are probing various methods to evolve and cater to the traditional obligations of teaching, research and placements; and are also looking to influence higher education to realize career and economic accomplishment. Taking into consideration these and other factors, the purpose of this research paper is to develop the foundation of an employable curriculum intended to position engineering colleges designed for success in the global workforce and contribute to a strong Indian economy.

This paper highlights the critical factors that influence students' decisions to attend college, their academic choices, and their relationship to work after graduation. As research demonstrates, an Employability Curriculum is one of the best options available for helping students to make decisions before graduation that will enhance their abilities as professionals in a global workforce

In this paper, the researcher highlights and establishes a particular form of quality education, which ought to be at the center of autonomous educational planning. The paper defines what an autonomous employable curriculum is and also analyses the parameters, the cobwebs; the major misconceptions and seeks to establish 'The Way Out', since this analysis is based on the dichotomy between "learning to do", and "learning to be"; and concludes with the words of Theodore M. Hesburgh.

This article institutes 3 sections:-

1. Establishes a definition of employability and explicates its relevance today.
2. Demarcates an Employability Curriculum's dimension and practice.
3. Deliberates potential outcomes for students, academic departments, and engineering institutions

Key Findings:

1. Employability conglomerates both academics and vocation.
2. Employability is dependent upon a strong academic program. The skills and competency gained in one's academic program are critical to exploiting employability.
3. The employable curriculum seeks to connect the classroom to the workplace /community in a meaningful way that is mutually beneficial, rather than reinforce a division between the two.
4. Employability is a process rather than a discrete program; employability matters at all levels of an institution and is relevant to all stages of student development.

Eventually, this paper is a roadmap for generating a successful program that will help engineering graduates to be more effective in creating lifelong careers.

Keywords:*employability, quality education, dichotomy, employability curriculum's dimension and practice, engineering graduates*

EN002

ECOFEMINIST EXPRESSIONS IN VANDANA SHIVA'S "STAYING ALIVE"

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Abstract

Ecofeminism applies feminist principles to ecological issues whose primary objective is to eliminate all forms of dominance and promote an organic and holistic ecosystem. Vandana Shiva is a pioneer among the Indian Ecofeminists who spearheaded the Chipko Movement in North India. Shiva's "Staying Alive" elaborates on the extent to which the relationship between nature and women is disrupted due to modernity at various levels. She vehemently criticizes the impact of masculine influence on food production that results in a number of disastrous consequences. This research article elaborates on Vandana Shiva's effort to uphold the principles of ecofeminismwhich personifies equality and dignity for both nature and humans alike.

Keywords: *ecofeminism, holistic, nature, woman, human, equality, dignity*

EN003

COPING STRESS WITH EMOTIONAL INTELLIGENCE

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Abstract

Emotional Intelligence is a theory which has gained much significance in the recent decades. The propagators of this theory were John Mayor and Peter Salovay. The publication of Daniel Goleman's book Emotional Intelligence revealed the practical dimensions of this theory. The present study is focussed on assessing the cognition levels of students in the first year of graduation and the impact of stress. An online survey questionnaire is filled by the students and the observations are recorded. The level of stress in students, their capability to cope with stress and excellence in studies are ascertained. The study emphasizes the need to promote development of emotional intelligence in students.

Keywords:E*motional intelligence,John Mayor, Peter Salovay, cognition, stress*

CE002

UTILIZATION OF SLUDGE WASTE IN MANUFACTURING OF CONCRETE PAVER BLOCKS

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Abstract

Study deals with reuse of textile mill sludge in making cement based Solid blocks which can be used in practice for bulk usage of sludge. Textile sludge is mixed with cement and later with combination of cement to make paver blocks. Solid blocks are tested for compressive strength. To study the post effects of the sludge reuse, water used for curing (curing water) is also analyzed for different parameters such as pH, EC, Solids, Hardness, chlorides etc by standard methods. Reuse of textile mill sludge as building material will increase bulk usage of sludge in future, thus completely eliminating landfilling disposal option.The carbon dioxide emitted from the worldwide production of ordinary Portland cement corresponds to approximately 7% of the total greenhouse gas emissions into the atmosphere. Hence there is a demand on byproduct which can partially replace cement.

Keywords: Textile sludge, pavers, concrete

FT001

ANALYSIS ON THE UTILIZATION OF BIODEGRADABLE NON WOVENS AS TOP LAYER FOR SANITARY NAPKINS

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Abstract

This project deals with the analysis of using biodegradable non woven's as top layer for sanitary napkins. Commercial sanitary napkin is made up of 80% of plastics and takes nearly 500-800 years to degrade in landfills. It also releases toxic gases on burning. So this project aims at utilizing Viscose and bamboo spun lace non woven for the top layer of the sanitary napkin. These non wovens will be tested for overall moisture management capability, Wetting time, absorption rate, maximum wetted radius, spreading speed, one way transport index. The results are expected to reveal the suitability for top layer of a sanitary napkin. Thus this project focuses mainly on eco-friendliness and sustainable development.

Keywords: *Viscose, Bamboo, Spun lace non woven, Top layer characterization, Sanitary napkins*

FT002

LOW COST BIODEGRADABLE ARECAHUSK FIBRE FOR THE REMOVAL OF DIRECT DYE FROM EFFLUENT

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Abstract

As treatment of dye plant effluent is becoming a mandatory requirement, search for cheap and best technology is progressing.Different treatment methods like filtration, flocculation, chemical precipitation, ion exchange, membrane separation and adsorption are being used in Industry. The adsorption process is one of the efficient methods to remove the contaminant from the effluent. New approaches based on the use of natural, inexpensive sorbent materials for effluent treatment are reported often. Areca husk fibre, a commonly available agriculture waste, is predominantly composed of hemicellulose. Dye solutions of different concentrations were prepared and a known amount of areca fibre as adsorbent was added to study the effect of concentration of dye solution and effect of the amount of adsorbent on the percentage of removal of direct dyes.

Keywords: *Areca fibre, adsorption, direct dye, effluent treatment, hemicellulose*

FT003

A CRITICAL REVIEW ON FRICTIONAL CHARACTERISTICS OF WOOL FIBRE

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Abstract

This paper examines wool's attributes for technical textiles and introduces a wide range of new and future applications. Directional frictional effect (DFE) of wool causes friction under applied force polishes the abrasive surfaces. Interlocking of scales of wool involves in ratchet mechanism. In this review, study of DFE characteristics of wool fibre discussed related to various applications for industrial textiles. Wool as a protein fibre has a unique property is its scaliness. Due to its scales on the surface of the fibres, friction increases and due to that abrasion characteristic also increases. By making use of this characteristic it is made use in polishing of various materials like glass, Steel and leather.

In our study woven woollen fabric of coarser count, which will has high friction is used for making wool composite. Woven fabric of particular gsm and density are calculated and made into a composite disc by use of resin. The disc roller is so designed in grooved pattern for technical reasons. The abrasion characteristics are so compared with the woollen fabric treated with Potassium permanganate solution which increases the friction characteristics. The abrasion resistances of both the fabrics are compared and their abrasive properties are studied.

Keywords: *Directional frictional effect, technical textiles, industrial textiles, woven fabric.*

FT004

A CRITICAL STUDY ON IMPROVING PRODUCTIVITY AND LIVELIHOOD OF HANDLOOM WEAVERS

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Abstract

Weight of traditional jacquard machine is reduced by modifying its components dimension and size. Pneumatic and electric lifting mechanism adopted on jacquard machine handloom and its productivity was studied and compared with traditional jacquard machine. Its productivity and earnings are discussed in this paper to enhance the livelihood of handloom weavers.

Keywords: *Handlooms,Jacquard, Productivity, Earnings. Lifting mechanism.*

FT005

STUDIES ON FLAT AND CUT-OPEN TUBULAR BRAIDED REINFORCEMENT COMPOSITES

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Abstract

The present studyis an attempt on using braided fabric as reinforcements for composite manufacturing using epoxy resin. Composites produced with two different sets of braided glass fabric reinforcements were considered. One set consisted of a biaxial flat braided glass fabric of 20mm width, named as 'flat-uncut braided reinforcement' and a biaxial flat braided glass fabric of similar construction parameters as above but cut to size of 20mm, named as 'flat-cut braided reinforcement'. Another set of fabric consisted of a cut-open and sized to 20mm width biaxial and a triaxial braided tubular glass fabric produced using the same yarn and braiding angle as used in the flat braided fabric, named as 'biaxial tubular-cut braided reinforcement' and 'triaxial tubular braided reinforcement'. Composites from the above reinforcements were produced using epoxy resin through compression moulding technique. These composites are tested for breaking load, Young's modulus and impact strength. After carrying out statistical significance tests, both the sets of composites were analysed, among and between them. It is found that the composites produced using braided flat or tubular-cut fabrics as reinforcements have lower mechanical properties compared to those produced from uncut reinforcements. Introducing the axial yarn in biaxial tubular fabric to produce triaxial tubular fabric and used in cut form to produce composite results in improving the mechanical properties of the product considerably.

Keywords: *Braided fabric, Glass fibre, Composite, Biaxial braiding, Triaxial braiding, Reinforced composite*

FT006

EFFECT OF SUSTAINABLE BLENDED FABRICS FOR APPARELS

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Abstract

Recently fashion world is slowly adopting for sustainability by choosing natural fibres and more eco-friendly processes. In the last decade, there has been revived interest in India, and now in China, to use banana fibre to make textiles. This paper deals with the combination of fabric using banana and bamboo fibres due to its sustainability towards environment. It helps companies in the fashion and textile industry to develop, advance and communicate their sustainability and circularity work more successful. Naturally these fibres having properties like bacteriostatic, antifungal, antibacterial, hypoallergenic, hydroscopic and resistance against UV light. This garment may protects the end-users taking into account both environmental and socio-economic aspects.Thus environmental impacts of petroleum-based fibres can be minimized.

KEYWORDS: *Eco-friendly, Bio-degradable, Natural fibres, UV Protection*

FT007

OPTIMISATION OF PROCESS PARAMETERS IN KENAF/ POLYPROPYLENE COMPOSITES IN COMPRESSION MOULDING

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Abstract

Renewable natural fibers like kenafcan be used to produce composites as replacement to plastic boards in household and industrial applications. The objective of this study is to to optimise the process parameters for compression moulding of kenaf polypropylene composite to get maximum tensile, flexural and impact strength. Three levels of Temperature (160 º C, 180 º C and 200º C), compression pressure (7, 9 and 11 Mpa) and time of application (10,20 and 30 min) have been used for producing kenaf/ polypropylene blend ratios of 50:50, 65:35 and 80:20. The samples were produced through carding for web formation, needle punching for nonwoven making and finally in compression moulding machine for boards making. All the composite boards were analysed for tensile, flexural and impact strength .Itwas found that the temperature and time has positive correlation with tensile strength and flexural strength in all blend ratios whereas pressure has positive correlation with Impact strength in 50:50and 65:35 blend ratios and negative correlation in 80:20 blend ratio.In 65:35 kenaf / polypropylene blendwith 200 º C Temperature, 11Mpa pressure and 10 minutes duration in compression moulding machine gives highest tensile strength and flexural strength. The maximum Impact strength is achieved with 80:20 blend at 180 º C, 7 Mpa pressure and 30 minutes duration. The tensile and flexural strength is the highest at a blend ratio of 65:35 whereas the Impact strength increases with the increase kenaf content up to 80:20

Keywords:*Tensile strength, Flexural strength, Impact strength, Temperature, Pressure, Time, natural fibre*

FT008

A STUDY ON THE INFLUENCE OF VARIOUS PROPERTIES IN FABRICS COMMONLY USED FOR A SAREE BLOUSE

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Abstract

This study deals with the analysis on the properties of three fabrics commonly used a saree blouse. The three fabrics chosen for the study are 2 by 2, Full voile and Amber. All the three materials were tested for GSM, thickness, Tensile strength, elongation, bending, drape and abrasion resistance. The results revealed that 2 by 2 fabric.

Keywords::*2 by 2, Full voile, Amber, properties, Tailorability.*

FT009

IMPLEMENTING, ENHANCING AND FABRICATION WITH NATURAL FIBRES IN HELMET

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Abstract

The helmet plays a major role in human safety especially at road. The helmets are made up of a number of different items. Mainly helmets comprises the use different kinds of fibres and also plastic materials. In fibres mostly synthetic fibres are being used, which mostly aren't good absorbers of heat and sweat. Hence this issue could be resolved by the use of more natural fibres which improves the advantage of heat and sweat absorbance this making the helmet comfortable to wear by all. There are many natural fibres that serve this very purpose let's dig into it.

Keywords: *Helmet, Natural fibres, Sweat absorbance, Comfort*

FT010

DEVELOPMENT OF BIODEGRADABLE ABSORBENT CORE FOR BABY DIAPERS FROM BANANA FIBRES

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Abstract

As people were concerned about the environment, everyone wants a sustainable product and people will be more cautious in using hygienic products. Some natural fibres have been left unused and it is to be properly utilized. Banana is one of the most sustainable fibres which is left unused, it was obtained from the pseudostem of the banana plant which was thrown as agricultural waste. Banana and cotton are known for its absorbency. It is one of the most essential feature always demanded by consumers. Wood pulp is the major raw material used in most hygienic products like a diaper, napkin etc., from destroying the trees, which was replaced by banana and cotton fibres. Cotton has chosen for its easy availability, low cost, comfort and hygienic properties. This paper deals with the study on the development of absorbent core for baby diapers using banana and cotton. The banana fibre was extracted from the pseudostem of the banana plant and it undergoes a bio-softening process. Cotton and banana fibres were needle punched to make an absorbent core. The antibacterial finish was given to the developed absorbent core. The developed absorbent core has been tested for free swell absorption, centrifuge retention and antimicrobial properties. These properties are to be compared with commercial diapers as per the standards. Various types of absorbent core have been developed by varying the combination of banana and cotton fibres.

Keywords: *Banana, cotton, absorbent core, diapers*

FT011

OPTIMIZATION OF PROCESS VARIABLES FOR FABRICATION OF PROTEIN FIBRE HYBRID COMPOSITES BY COMPRESSION MOULDING USING BOX BEHNKEN EXPERIMENTAL DESIGN

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Abstract

The present work highlights the optimization of mechanical properties of silk and wool hybrid fibre reinforced PP composites using Box- Behnken experimental design with response surface methodology. Silk and wool fibre reinforced hybrid composites were fabricated in compression moulding machine. The mechanical properties of the hybrid composites such as tensile strength, flexural strength and impact strength were optimized based on the input variables like moulding temperature, moulding time and pressure. The optimized conditions were arrived at a moulding temperature of 180 °C, at the time of 7.50 min and at the pressure of 35 bar.

Keywords: *Silk, wool, hybrid composite, PP, tensile strength, flexural strength and impact strength*

FT012

COMPARATIVE STUDY OF NATURAL FIBRE COMPOSITE FOR TECHNICAL APPLICATION

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Abstract

Natural fibres with low density, biodegradable, recyclable and environmental friendly are abundantly used in all fields to replace polymers. Natural fibers has its origin from cultivated plants, animals and trees which have intrinsic properties such as low weight, cost, high specific strength, and specific stiffness. These natural fibres offer a number of advantages over traditional synthetic fibres. Natural fibres which have low specific gravity, tensile strength, high modulus which also offers renewability biodegradability and cost saving when compare to synthetic polymers and fibres. Some biodegradable fibers, flax, hemp, may provide the specific mechanical properties compared to those of the glass fiber, due to their high strength and low density of their volume. Due to these characteristics the replacement of the synthetic fibers with natural fibers has a wide range of technical application. Due to these characteristics, natural fibers have recently become attractive to researchers and scientists as an alternative method for protective textiles and fibers reinforced composites. This paper focused on combination of different properties of natural fibers and its applications which were used to protective textiles and natural fibre composites. Also this paper study of mechanical characteristics of natural fibres and their application in composite and protective textiles.

Keywords: *biodegradable, density, synthetic fibres, protective textiles, composite.*

EXIT01

IMPROVING THE EFFICIENCY OF CLUSTERING WITH DRIFTING CONCEPTS USING DIFFERENTIAL EVOLUTIONARY PARTICLE SWARM OPTIMIZATION ALGORITHM

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Abstract

Data mining is the process of extracting the knowledge or patterns from large volume of database. Clustering is the process of grouping the similar data objects in to clusters so that the objects in the same cluster have high similarity but are very dissimilar with objects in other clusters. An existing system uses an iterative optimization algorithm for clustering the data objects with drifting concepts using some cluster validity function to evaluate the effectiveness of the clustering model while each new input data subset is flowing. The Proposed system uses Differential Evolutionary Particle Swarm Optimization(DEPSO) model for effectively clustering with drifting concepts. The experimental result shows the superior performance of the proposed algorithm.

Keywords: *Cluster analysis, Differential evolutionary, Particle Swarm Optimization, Drifting concepts detection*

IT01

A RECAPITALIZATION ON CRYPTOJACKING AND END TO END ANALYSIS OF RANSOMWARE ATTACKS

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Abstract

The recent trend of today's digital media is the usage of poisoned website to mine crypto currencies ,these currencies are alternatives to traditional currencies which work based on decentralization, bit coin was the first currency to be establish in this way, crypto currencies are protected with block chain which can be simplified as growing chain. This block chain is managed by peer to peer network, based upon this blockchain network crypto jacking takes place, and hence cryptojacking is mining of one's digital currencies without their knowledge, hackers find cryptojacking more profitable because they are a lot cheaper and safe than compared to other digital thefts. Tracking and finding the cause of theft becomes very hard in this method because mining kits can be purchased at a very cheap cost. There are primarily two methods to be followed to get to the computer and to perform cryptojacking, one is to run a infected code on the host computer and the other is to make the user click the content with threat but widely both will be used for increased profit outcome. In this paper an overview of crypto currencies ,method of decentralization, various mining techniques followed and different types of cyber crimes prevalent are discussed.

Keywords:*Crypto jacking, Crypto currencies, Mining , Online scams*

IT02

A CRITICAL ANALYSIS OF LPWAN AND OTHER IOT CONNECTIVITY OPTIONS

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Abstract

This paper compares various approaches to IoT connectivity and then throws light on various features of the LPWAN paradigm. It also compares the various network architectures of the licensed and the unlicensed LPWAN connectivity option and the scope of research in LPWAN-IoT security. Low-Power Wide Area Networks LPWAN has been chosen as the most promising connectivity option in most sectors due to its low power operation, wide range, low cost and scalability. One of the factors by which it is able to achieve the above-mentioned properties is the use of star network topology.

Keywords:*IoT, Connectivity, IoT Security, Low Power, High Range, Network Security*

IT03

SALES PREDICTION FOR A MANUFACTURER

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Abstract

This paper introduces the complex system perspective into retail market analysis. To understand the retail market, a person has to search for local patterns at the micro level which includes segmentation, separation and profiling of diversified group of consumers. Hence, markets are modelled as complex systems. Such strategy is able to uncover emerging regularities and patterns that make markets more predictable. This strategy considers the system as a whole to detect the emerging pattern as a result of the interaction between its self-organizing parts. The global behaviour of the retail market naturally emerges as a novel description of its properties. This task demands for a data-driven empirical framework. In this paper, we analyse a transaction database, recording the micro-purchases of a million customers in the stores of a supermarket chain.

Keywords: *sales prediction, retail analysis, forecasting*

IT04

SURVEY OF DEEP LEARNING ARCHITECTURES AND DIFFERENT TASKS OF OBJECT DETECTION

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Abstract

Deep learning is a subset of the field of machine learning, which is a subfield of AI. The facts that differentiate deep learning networks in general from “canonical” feed-forward multilayer networks are More neurons than previous networks, More complex ways of connecting layers, “Cambrian explosion” of computing power to train and Automatic feature extraction. Deep learning is defined as neural networks with a large number of parameters and layers in fundamental network architectures. Some of the network architectures are Convolutional Neural Networks,Recurrent Neural Networks Recursive Neural Networks, RCNN (Region Based CNN), Fast RCNN, Google Net, YOLO (You Only Look Once), Single Shot detectors, SegNet and GAN (Generative Adversarial Network). Different architectures work well with different types of Datasets. Object Detection is an important computer vision problem with a variety of applications. The tasks involved are classification, Object Localisation and instance segmentation. This paper will discuss how the different architectures are useful to detect the object.

Keywords:*Deep learning, RNN, CNN, YOLO, SSD*

IT05

VARIOUS APPROACHES FOR RECOMMENDATION SYSTEM

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Abstract

Recommender systems(RSs) are used in application domains to assist customers in the search for their favorite products. Recommender system filters information which takes users ratings and predict user preferences in ecommerce and other categorical websites. we investigate personal recommendation based on customer preferences and search the neighbors through the customer preferences.It generates recommendations based on implicit feedback or explicit feedback. Implicit feedback is based on analysis of browsing patterns of the user. Explicit feedback is generated from the ratings provided by the user. More broadly addressed was the topic of machine learning's algorithms, focused on filtering algorithms based on the users or objects, and based on content.

Keywords: *Recommendation System, text mining, decision making*

IT06

WATER BASED ROVER FOR EXPLORATION AND RESEARCH

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Abstract

The development of new classes of commercial underwater robotic vehicles – deep diving work-class remotely operated vehicles and survey-class controlled vehicles – is being driven by the needs of underwater research. This paper presents a proposal for a work for a new water based rover and also presents a study of the present state and future directions of commercial underwater robotics, examines principal technical challenges, and outlines new enabling technologies for commercial underwater robotic vehicles. The vehicles shall be fitted with camera and is a tethered underwater mobile device and also be used to overcome the drawbacks of the existing works

Keywords:*Remotely operated vehicle, Underwater robots, Ocean exploration*

IT07

VOICE NORMALIZATION AND AUDIO QUALITY ANALYSISIN CELLULAR CONFERENCE CALL MAINTENANCE

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Abstract

Conference call is the one which can be used in many types of communication resources. In this case, the conference call resource will interconnect many number of peoples to share the same or different information. There is many types of issues evolved during generation or communicating through the conference calls. Such as the back ground noise, audio delays and the unrecognised speaker volume. The proposed approach Voice Normalization and Audio Analysis (VNAA) call connecting will detect the error codes and improve the quality of calls, when connected with many number of users. By this approach the error ranges and quality ratios are identified and rectified for the received calls.

Keywords:*Voice Normalization and Audio Conference (VNAC), Error signal detection, Amplification*

IT08

PSYCHIATRIC COUNSELLING WITH CHATBOTS

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Abstract

Chatbots, or conversational interfaces are a new way for individuals to interact with computer systems. Recent advances in machine learning have greatly improved the accuracy and effectiveness of natural language processing and chatbots are becoming an option for many organizations. Most commercial chatbots are dependent on platforms created by the technology giants for their natural language processing. There are early studies where users are given psychiatric counselling with chatbot which have changed the drinking habit based on intervention approach. This is a more accurate and continuous emotion recognition with better satisfaction to users who need mental health care. All psychological response based on ethical responses is also added. This is a conversational service for psychiatric counselling based on of high-level natural language understanding (NLU), and emotion recognition based on multi-modal approach. These methodologies enable continuous observation of emotional changes sensitively and a case-based counselling response model is proposed for psychiatric counselling.

Keywords:*Chatbots, Psychiatric counselling, Natural Language Understanding, Emotional changes, Machine Learning*

IT09

SCALABLE IOT BASED HOME AUTOMATION SYSTEM

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Abstract

Home automation is becoming popular due to its numerous benefits. Home automation refers to the control of home appliances and domestic features by local networking or by remote control. The proposed system consists of two main components; the first part is the web server, which presents system core that manages, controls, and monitors users' home. Users can locally or remotely manage and control the system. Second part is the hardware interface module, which provides appropriate interface to sensors and actuator of home automation system. Unlike most of available home automation system in the market the proposed system is scalable that one server can manage many hardware interface modules as long as it exists on Wi-Fi network coverage. System supports a wide range of home automation devices like power management components, and security components. Using the system user can monitor the status of smart appliances, control the power status of smart appliances, and control the device status according to the particular device configurations. The proposed system is expected to be better from the scalability and flexibility point of view than the commercially available home automation systems.

Keywords:*IoT, Cloud, Home automation, Mobile Application*

MAT001

DE-NOISING MEDICAL IMAGES BY HYBRID FILTER IN WAVELET DOMAIN

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Abstract

De-noising is one of the most important task in nearly all medical imaging applications. In this paper, a new hybrid method for de-noising medical images based on hybrid filters in the wavelet domain is proposed and analyzed. The wavelet transform is applied to decompose the medical image into its four sub-bands. The RMSE and PSNR measures are used to analyze the improvement in de-noising medical images. The experimental results indicates that the proposed method gives the better result than conventional de-noising methods.

Keywords:*Medical image, Hybrid filter, Wavelet Transform, PSNR and RMSE*

MAT002

A STUDY ON M/M/C QUEUE UNDER MONTE CARLO SIMULATION FOR A RESTAURANT MODEL

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Abstract

In this paper we present a stochastic queuing model for a restaurant which captures the stationary density flow relations. The performance of controlling the heterogeneous crowd in a restaurant under Monte Carlo simulation with various service distributions has been discussed. Using this analysis in future the waiting time of the customers can be reduced and the profit of the management can also be increased. The future behavior of a restaurant networks both in simulation and analytical methods have been analyzed. Examples to illustrate these methods have been discussed.

Keywords: *Inter arrival pattern, Service pattern, M/M/C Queue, Monte Carlo Simulation*

MAT003

A REVIEW ON SYMMETRIC KEY ALGORITHM IN CRYPTOGRAPHY WITH IMPROVING SECURITY

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Abstract

Security is the most important aspect in the field of internet and network application. It is an important task to secure information over the network. To secure information, cryptography can be used. In today's digital communication era sharing of information is increasing significantly. The information being transmitted is vulnerable to various passive and active attacks. Therefore, the information security is one of the most challenging aspects of communication. Cryptography play very important role in information or communication security on network. Cryptography is a technique, which is used to encrypt and decrypt data or information in a secret form. The cryptography can be divided into two parts that are Symmetric key cryptography and Asymmetric key cryptography. A secret key algorithm (sometimes called a symmetric algorithm) is a cryptographic algorithm that uses the same key to encrypt and decrypt data. The main idea of this paper is to improve the security issues in symmetric key cryptographic algorithm, its comparison and the attacks to which they are vulnerable to.

Keywords: *Cryptography, Symmetric Key algorithm, active attacks, passive attacks*

MAT004

SIMILARITY MEASURE BETWEEN NEUTROSOPHIC REFINED SETS AND THEIR APPLICATIONS IN MEDICAL DIAGNOSIS

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Abstract

In this paper, we focus on introducing similarity measure between neutrosophic refined sets based on the exponential operation in a new way to handle the indeterminate information and inconsistent information. Also we have proved some relevant properties of similarity measure between neutrosophic refined sets. Then, we compare the proposed similarity measure with the existing similarity measures of neutrosophic refined sets by numerical examples to demonstrate their effectiveness and rationality for overcoming some shortcomings of existing similarity measures. Finally, an application of neutrosophic refined set is given in medical diagnosis problem to illustrate the benefit of the proposed approach.

Keywords: Neutrosophic set, Neutrosophic refined set, Exponential similarity measure, medical diagnosis.

MAT005

INTUITIONISTIC FUZZY QUASI WEAKLY GENERALIZED CONTINUOUS MAPPINGS

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Abstract

The purpose of this paper is to introduce and study the concepts of intuitionistic fuzzy quasi weakly generalized continuous mappings in intuitionistic fuzzy topological space. Some of their properties are explored.

Keywords: *Intuitionistic fuzzy topology, intuitionistic fuzzy weakly generalized closed set, intuitionistic fuzzy weakly generalized open set and intuitionistic fuzzy quasi weakly generalized continuous mappings.*

MAT006

WEAKLY GENERALIZED CONNECTEDNESS IN INTUITIONISTIC FUZZY TOPOLOGICAL SPACES

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Abstract

In this paper we have introduced the intuitionistic fuzzy weakly generalized connected space, intuitionistic fuzzy weakly generalized super connected space and intuitionistic fuzzy weakly generalized strongly connected space. We investigated some of their properties. Also we characterized the intuitionistic fuzzy weakly generalized connected space.

Keywords: *Intuitionistic fuzzy topology, intuitionistic fuzzy weakly generalized connected space, intuitionistic fuzzy weakly generalized super connected space and intuitionistic fuzzy weakly generalized strongly connected space.*

MAT007

DIGITAL HOMOTOPY ON SUBSPACE TOPOLOGY

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Abstract

In this paper, the concept of digital subspace path homotopy is been introduced among the continuous functions based on the concept of digital homotopy. The fundamental group on digital subspace homotopy is been established by defining an equivalence relation among the homotopy functions. Further, the concepts of digital subspace homotopy and digital subspace path homotopy have been introduced and some of their properties are discussed.

Keywords: *Homotopy, Subspace Homotopy, Fundamental Group, Digital Homotopy, Digital Subspace Homotopy*

MAT008

AN EFFICIENT MULTIPLICATION ALGORITHM FOR MULTIPLYING LARGE NUMBERS USING VEDIC MATHEMATICS

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Abstract

Multiplication is one of the most important operations in computer arithmetic. Mostly, the algorithms proposed for multiplying two numbers is based on repeated addition. Also, the number of times the addition operation is performed is dependent on the number of operands supplied for the multiplication operation. In this paper, we propose a multiplication algorithm using the techniques of Ancient Indian Vedic Mathematics that makes use of less number of addition/subtraction operations which can be used to multiply two binary numbers efficiently. Vedic Mathematics is the ancient system of mathematics which has a unique technique of calculations based on 16 Sutras.

Keywords: *vedic mathematics, urdhvatriyakbhyam sutra, Booth's algorithm*

MAT009

CONNECTEDNESS UNDER NANO IDEAL TOPOLOGICAL SPACES AND APPLICATIONS OF NANO TOPOLOGY

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Abstract

This article aims the concept of connectedness under nano ideal α generalised closed sets (nIαg-connectedness) in nano ideal topological spaces. Heredity properties namely union and cartesian product of nIαg-connected sets are thoroughly studied and analysed. Some equivalent conditions on these sets are concentrated. Applications of nano topology is also presented.

Keywords: *nanoideal topology, nano connected sets, nIαg-connected sets*

MAT010

Δ*-CLOSED SETS IN BITOPOLOGICAL SPACES

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Abstract

The extension of the theory of closed sets namely, Δ*-closed sets to a kind of closed sets termed as (g, h) Δ*-closed sets in bitopological spaces has been presented here. Also the properties and characterizations of these sets together with their relative study are proposed.
AMS Classification : 54E55

Key Words: *Δ*-closed set, (g, h)generalized-closed set and (g, h) Δ*-closed set.*

MAT011

EXISTENCE OF SOLUTIONS OF FOREST DYNAMICS

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Abstract

A diffusion model of forest boundary dynamics is attempted. An analytic solution is established with homotopy analysis method. Impact of exothermic and endothermic factors are discussed.

Keywords: *Homotopy analysis method, forest boundary dynamics, seed dynamics.*

MAT012

ANALYTICAL APPROXIMATION OF THE TWO DIMENSIONAL HPA AXIS

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Abstract

A two dimensional delayed differential equation of Hypothalamo-Pitutary-Adrenocortical axis is attempted. Analytic approximation is obtained by using HAM. The impacts of parameters are analyzed.

Keywords: *Homotopy analysis method, Hypothalamo-Pitutary-Adrenocortical axis.*

MAT013

ACHROMATIC AND B-CHROMATIC COLOURING OF THE OF SPLITTING GRAPH OF SOME GRAPHS

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Abstract

The splitting graph of a graph G is obtained by taking a new point v' for each point v of G and joining v' to all points of G adjacent to v. In this research investigation, the achromatic and b-chromatic numbersof the splitting graphs of path, star graph, double star graph, comb graph and complete graph have been studied. In addition, the structural properties of these graphs have been studied.

Keywords: *Achromatic number, b-chromatic number, Splitting graphs, Star graph, Comb graph, Complete graph*

MAT014

THE ACHROMATIC NUMBER OF CENTRAL GRAPH OF SOME SPECIAL GRAPHS

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Abstract

In this research paper, the achromatic number of central graph of double wheel graph, wind mill graph, n- anti prism graph and caveman graph has been studied. In addition to that the structural properties of these graphs have also been studied.

Keywords: *Double wheel graph, wind mill graph, n-anti prism graph, cave man graph achromatic number*

MAT015

NANO GENERALIZED-SEMI HOMEOMORPHISMS IN NANO TOPOLOGICAL SPACE

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Abstract

The concept of generalized-semi homeomorphism was introduced andstudied by Devi et. al and several topologists analysed the notion of nano homeomorphism in nano topological space.In this paper,nanogeneralized-semi closed functions and nanogeneralized-semi open functions in nano topological space are analysed in relation with existing functions . Also, new notions like nanogeneralized-semi homeomorphisms and nanogeneralized-semi* homeomorphisms are introduced and some of their properties are analysed.The new concepts namely, nanogeneralized-semi compactness and nanogeneralized-semi connectedness in nano topological spaces are also introduced.

Keywords: *Nano continuity, Nano sg-continuity, Nano sg-irresoluteness, Nano gs-open sets, Nano gs-closed sets, Nano gs-continuity,Nanosg-homeomorphism.*

MAT016

COMPARATIVE ANALYSIS OF NEURAL NETWORKS AND FUZZY OPTIMIZATION TECHNIQUES IN ROUTE PLANNING FOR REAL TIME EMERGENCY MEDICAL SERVICE SYSTEM

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Abstract

This paper mainly deals with the comparative study of a Fuzzy Optimization and Neural Networks of a Routing model for Emergency Medical Service System. The effectiveness of Emergency Medical Service System shows a dynamic role towards society fortification. The notion of this article is to examine the real time flexible dispatching strategy so that crucial response time can be saved for EMSS. To develop the flexibility in dispatching strategy with the time information and an optimization routing model is designed and compared with the neural networks techniques. Based on the numerical calculations and graphical representation it reveals to the fact that the different parameters are being analyzed such as duration prediction, incident/vehicles tracking and consign Optimization and it is validated for road networks.

Keywords*: Fuzzy Multi Objective Linear Programming, Emergency Medical Service System, Neural Networks*

MAT017

BAYESIAN LEARNING OF ENSEMBLES WITH ECHO STATE NETWORK (BLE-ESN) FOR TEMPERATURE PREDICTION

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Abstract

Temperature prediction is a challenging problem and a concern in energy, environment, industry and agriculture etc. Climate models and statistical time-series forecasting methods are the ineffective forecasting tools of the long-range temperature prediction. Based on analysis of monthly temperature data sets, a new Recursive Bayesian Linear Regression algorithm with echo state network (RBLR-ESN) algorithm is proposed for prediction of long-term temperature. But the major issue of this work is the computational complexity and accuracy or prediction rate of the algorithm is not enhanced correctly. To solve this computation complexity issue, in this work Bayesian Learning of Ensembles with echo state network (BLE-ESN) algorithm. BLE-ESN algorithm is for producing ensembles of predictors based on holdout estimations of their generalization performances. This approach uses a prior directly on the performance of predictors taken from a finite set of candidates and attempts to infer which one is best. The algorithm consists of two main components: ESN and a BLE algorithm with an adaptive inflation factor that changes the confidence level of the prior data. It is shown that BLE-ESN has a good and competitive accuracy with current state-of-the-art methods for temperature prediction.

Keywords*: Bayesian learning, Ensemble learning. Linear Regression algorithm, prediction*

MAT018

NON-FRAGILE STATE ESTIMATION FOR DISCRETE TIME-DELAYED SWITCHED NEURAL NETWORK WITH PARAMETER UNCERTAINTIES AND SOJOURN PROBABILITIES

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Abstract

This paper investigates to design a state estimator that is non-fragile in nature for a class of uncertain discrete time-delayed neural networks with parameter uncertainties and sojourn probabilities. These norm bounded parameter uncertainties are of a general type consisting of both linear and nonlinear-parts and the possible implementation error of the neuron state estimator is taken into account by the variation of the estimator gain. A new switched system is modeled by employing the information of sojourn probability method for all admissible parameter uncertainties and gain variations which guarantees the asymptotic mean square stability of the resulting error system. By applying Lyapunov function technique, the desired state estimator is designed and the gain matrix's characterization in terms of linear matrix inequalities (LMIs) is done explicitly. Finally, a numerical example is illustrated for the developed state estimation approach.

Keywords: *Discrete time-delayed switched neural networks, non-fragile state estimator, sojourn probability method.*

EXMAT001

FUZZY BASED DE-NOISING UNDER WATER IMAGES BY HYBRID FILTERS

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Abstract

In recent years, technological development has significantly improved in under water image processing. The major problem is that they are inherently affected by poor contrast and noise due to light absorption and scatteringin the oceanicenvironment. In this paper, a fuzzy based hybrid filters for de-noising under water images is proposed and analyzed. The proposed algorithm is compared with various existing de-noising algorithms such as Wiener filter, median filter and average filter.The PSNR and NMSE of each algorithm has been measured and analyzed, which compares the ability to de-noising.

Keywords: *Under water image, Hybrid filter, Fuzzy filter, PSNR and NMSE*

MBAA01

DATA DE-DUPLICATION USING PLAGIARISM

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Abstract

Cloud storage is a remote storage service, where users can upload and download their data anytime and anywhere. Data duplication, data leakage, space consumption, etc. are the main issues concerning cloud storage. During the time of upload, data is converted into binary data. In the proposed method, by using AES algorithm, cipher text is created, which is stored in the cloud. Further, using MD5 algorithm, a hash value is created and it is stored in the hash table. Parallel to this, plagiarism is running and it involves content checking. Out of the different methods of plagiarism, syntactic based method is used here. Syntactic based method do not consider the meaning of words, phrases, or sentences. Content checking is performed to eliminate duplicate cipher text. Here, a threshold value is set and if content similarity is smaller than the threshold value, user opinion is asked to upload the data. Here, data compression is performed at the time of uploading data to the cloud and this is done to reduce the amount of storage space. Plagiarism and compression techniques avoid unwanted memory usage. The proposed method offers better data securitythan the existing one and user can utilize the data asneeded.

Keywords: *Cloud computing, Storage, AES algorithm, MD5 algorithm*

MBAA02

AUTOMATIC VOLTAGE REGULATION IN CONSUMER PREMESIS BY USING IoT

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Abstract

Transformers outages have a considerable economic impact on the operation of an electrical network. According to Indian Electricity Rule, chapter-5,Rule -54."Declared voltage of supply to consumer should be ±6%".Voltage fluctuation occurs upon the variation in the connected load that may vary widely in any of the consumer premises, which affects the lifetime and performance of the appliances. The performance of most of the modern electronic appliances requires rated voltage for their best operation. Lesser the voltage, the appliance would not operate; higher the voltage, the appliances heated up and lose their life. The objective of this project is to address these issues with an Arduino controller against the voltage fluctuations. A controlling strategy is developed to deliver rated output voltage of 230V from the device for a change in input voltage from 215V to 245V. Actually, the developed prototype model is a replica of replacing the OLTC\ULTC in the distribution transformer.

Keywords: *Transformer, Arduino, Fluctuations, Distribution*.

MBAA03

SECURE DATA ACCESS OPTIMIZATION IN CLOUD COMPUTING

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Abstract

Data Owners storing their data into the cloud, they can be relieved from the burden of data storage and maintenance and they get on-demand high quality data storage service. Attribute-based encryption (ABE) have been proposed for access control of outsourced data in cloud computing. Most of the ABE based concepts suffer from inflexibility in implementing complex access control policies. To influence scalable flexible and fine-grained access control of outsourced data in cloud computing, the proposed system proposes hierarchical attribute-set-based encryption (HASBE) by extending cipher-text policy attribute-set-based encryption (ASBE) with a hierarchical structure of users. The proposed system achieves scalability due to its hierarchical structure and also inherits flexibility and fine-grained access control in supporting compound attributes of ASBE. In addition HASBE employs multiple value assignments for access expiration time to deal with user revocation more efficiently than existing schemes. The proposed system provides security based on cipher text-policy attribute-based encryption (CP-ABE) scheme.

Keywords: *Attribute Based Encryption (ABE), hierarchical attribute-set-based encryption (HASBE).*

MBA04

SURVEY ON SECURITY OF INTERNET OF THINGS

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Abstract

Internet of Things plays major role in the current network scenario. It connects and collaborate with anywhere anything at anyplace through the internet. In future, it will change our living styles. But providing security is the major challenging factor. Currently available security technologies are unable to fulfil the safety requirements of IoT environment. IoT networks needed to ensure confidentiality, authentication, access control and integrity. To provide better security need to understand about the security issues and challenges.

This paper is a general survey of all the security issues existing in the internet of things. This survey focused on various aspects for the identification of security and privacy issues in the current IoT network.

Keywords: *Internet of Things (IoT), Security, Privacy, Survey.*

MBAA05

IOT – BASED RESOURCE MANAGEMENT FOR COLLABORATIVE CLOUD COMPUTING

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Abstract

The collaborative cloud computing (CCC) which is collaboratively supported by various organizations (Google App Engine, Amazon's EC2, IBM's Blue-Cloud, Microsoft's Azure) offers a promising future for distributed cloud resources. Trust and security have prevented businesses from fully accepting cloud platforms. To provide trustworthiness between clouds, providers must first secure virtualized data center resources, sustain user privacy, and preserve data integrity. This scenario suggests using a trust-overlay network over multiple data centers to implement an integrated resource and reputation management system for establishing trust between service providers and data owners. This work opens a platform called IOT- based collaborative model to gain advantage of computing resources which incorporates key technological innovations by enhancing the efficiency and effectiveness of resource and reputation management to meet user's diverse Qos demands.

Key words: *Collaborative cloud computing, Resource management, Reputation management*

MBAA06

PREDICTIVE ANALYSTICS OF DISEASES USING BIG DATA

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Abstract

The important cause of an employer is to foster a wealth and to promote the healthful existence. An business enterprise is an entity comprising more than one people, such as an institution or an association that has a collective goal and is connected to an outside surroundings. When defining the organizations we need to begin from the wholesome lifestyle. The healthful life additionally ensure the criterion for the companies typology. Then the fitness fame of the peoples are being analyzed. The transition from the theoretical aspects to the pragmatic ones become accomplished via the presentation of the leadership. The efficiency of the health center corporations is measured with the aid of the capability of the control to integrate them into the environment. The maximum crucial characteristics of the hospital companies are the reality that provided the health status for future based totally on gift fitness status. By means of the usage of statistical expertise, we should decide the most important continual illnesses within the location. Third, to handle dependent facts, we seek advice from hospital specialists to extract useful capabilities. For unstructured textual content facts, we select the functions routinely the usage of CNN set of rules. Finally, we advocatea singular CNN-based totally multimodal disease hazard prediction algorithm for established and unstructured information. The ailment threat version is obtained by way of the combination of dependent and unstructured capabilities. The purpose of this observe is to are expecting whether or not a patient is amongst the cerebral infarction excessive-risk population in keeping with their medical records. More officially, we regard the risk prediction model for cerebral infarction as the supervised gaining knowledge of strategies of system gaining knowledge.

MBAA07

HOME SECURITY SYSTEM USING IOT

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Abstract

The internet of things **(IoT)** has become a very widespread internetworking of real-time applications such as smart automobiles say vehicles, smart devices say mobile phones, smart home, etc. IoT works efficiently when used with sensors to sense the data along with network connectivity. IoT enables the objects to collect and exchange data among devices being connected in any network. IoT allows objects to be sensed and/or controlled remotely across existing network infrastructure. When IoT is augmented with sensors and actuators, the technology becomes an instance of the more general class of cyber-physical systems which encompasses technologies such as smart homes, smart grids, smart cities, intelligent transportation. Each data is uniquely identifiable through its embedded computing system but it is able to interoperate within the existing Internet infrastructure. Our system is based on one of the internets of things application smart home. The proposed system is named to be “Home Security System”. This system is used to protect and ensure the safety of our homes by embedding sensor technology in IoT. Sensors will be used as an indoor set of homes to identify the attackers who try to perform theft when the home is locked. When an authorized person lives his home, a person will switch on the system designed with the sensor in raspberry hardware of IoT. When an unauthorized person tries to open the door, system fixed in the door set will sense the signal. This signal, in turn, will be sent as ping to the owner mobile to unlock the house door correspondingly. This simple application enables stakeholders to ensure the safety of their homes at an affordable cost.

MBAA08

A STUDY ON NETWORK MANAGEMENT IN SOFTWARE DEFINED INTERNET OF THINGS (SDIOT)

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Abstract

With the rapid growth of hi-tech world, the network and its operations are playing the vital role in day to day activities of individuals and organizations. The network users are increasing day by day in a hasty manner. In addition to Internet of Things (IoT) connects more and more devices and supports an ever-growing diversity of applications. The heterogeneity of the devices, unified network management for large scale of the network, information sharing and protecting the information are the main challenges of today's network environment. The network management is a broad range of activities including traffic control, topology management, security and energy management. Software Defined Internet of Things (SDIOT) provides the promising solutions to the traditional networks and also provides a new feature into the networking environment. The integration of SDN architecture into the Internet of Things (SDIOT) is providing an essential controlling the entire network and ensures the efficiency of the large scale network. This paper highlights the key features and open research challenges of various network management in SDIOT.

Keywords: *Software Defined Network, Internet of Things, Topology, Security.*

MBAA09

E-POLL CASTING SYSTEM USING JAVA

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Abstract

The E-Poll Casting System aims at making the voting process easy in cooperative societies. Presently voting is performed using ballot paper and the counting is done manually, hence it consumes a lot of time. There can be the possibility of invalid votes. All these make the election a tedious task. The objective is to create and manage polling and election details. This is a system which enables all citizens to cast their vote online. Increasing the voting percentage across the country is the major goal of this system. People have to visit the booth to cast their vote in the present system across the country. This system is online and hence even people who live out of their hometown can also vote. In our proposed system voting and counting is done with the help of the computer. It saves time, avoids error in counting and there will be no invalid votes. It makes the election process easy. The online voting system gathers its own significance since the non-resident of India voting Rights bill has been passed by the parliament. The new law will allow an Indian citizen residing abroad to enroll in voter's list and exercise his franchise even if he or she remained away from the place of residence. In this system people who have citizenship of India and whose age is above 18 years of any sex can give his/her vote online without going to any polling booth. There is a database which is maintained by the Election Commission of India in which all the names of the voter with complete information is stored.

MBAA10

APPLYING ARTIFICIAL INTELLIGENCE TECHNIQUES TO ARREST EMPLOYEE CHURN

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Abstract

HR function today has seen the benefits of using Analytics to maximize their efficiency. An important area where predictive analytics is used is in the domain of employee churn. By assessing and arresting Employee churn, an organization is able to identify key talent, predict the nature of employees who are likely to leave an organization and also take measures and steps to retain key talent. This model was built with the intention creating early warning indicators for HR department of company. Life sciences industry in India is faced with constant employee turnover problem green globe biotech Pvt. Ltd. A life sciences company with 3000 Employees across 8 branches and with 16 years of existence in the market faced the problem of Employee attrition. The attrition levels for the year 2014-15 were16%.This paper therefore aimed at identifying the key components that will affect employee turnover, collect data for the study constructs and develop a model that will enable predicting the employees who are likely to leave the organization in the next 6 months.

Keywords*: Artificial intelligence, Life Science, Attrition model, Employee Churn*

MBAA11

BANKING CUSTOMER CHURN ANALYSIS

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Abstract

Retaining the existing customers is one of the biggest challenges which is faced by small regional bank in this highly competitive environment. According to a survey done by McKinsey & Co., regional bank area the risk of losing 10% of their customer base to big size banks. This phenomenon has resulted in a need of early warning indicators with the help of which they can anticipate customer churn and develop a reference card for taking better decisions.

According to Pareto principle, your 80% of your profits is expected to come from existing customers. In other words “Retaining existing customer will fetch you more profitability” or sometimes your cost of adding new customers can be reduced by five times if your existing customers are retained (Gronroos, 1984 and Reich and Benbasat).

This research studies the factors that affect customer retention in a regional banking branch. The focus of the study was to identify crucial factors that affect customer churn in the specific bank. The study constructs that were identified and used for analysis were Cust_ID, Target, Age, Gender, Balance, Occupation, Score, number of credit transactions, holding period & age bucket. To measure the customer churn the classification technique using logistic regression algorithm is used. An analysis of the impact of demographic and other factors in sustaining the existing customers. Major factors like age, gender and balance plays an important role in identifying customer churn.

Keywords: *Banks, Customer churn, Predictive Modeling, Logistic Regression*

MBAF01

A STUDY ON INVESTORS PREFERENCES TOWARDS MUTUAL FUNDS IN ERODE DISTRICT

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Abstract

Every Investor and every investment is unique. They have their own preferences and features respectively. People save and invest a part of money for their future requirements. There are lots of investment avenues available. So, it is crucial to choose the correct investment, which fulfill the investor's needs and wants. The mutual fund organizations always have a challenge to understand customers. So this study examines the factors influencing the investment behavior, rapid fluctuation among investors in investment Preference and Challenges affecting the investment decision made by investors. Data is collected through a survey of individual investors based in Erode. The sampling method used in this project is non-probability sampling method. The sample is drawn using the convenient sampling technique. The respondents were selected according to the convenient sampling method which covered both urban rural part of Erode City. The target population was Erode investors. The sample collected for this study is 150 individual investors. Findings revealed that most of the respondents are interested in post office NSC and prefer bank deposit, mutual fund as their top most priority in future investments. Demographic factors such as age, occupation influence the investment decisions. Also, Capital appreciation decides the satisfaction of investment irrespective of gender. There is significant relationship between the gender and investment decisions. It's evident that Investors prefer safety Investment with moderate returns than risky investment with higher return. The investment should have some liquidity in case of emergency. No investment has 0% risk and 100% return.

Keywords: *Investment Preferences, Mutual Funds, Safety, Risk-taking Ability*

MBAF02

DETERMINANTS OF PROFITABILITY OF BANK NIFTY COMPONENTS

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Abstract

Banking stocks have been selling off of late. Lingering asset quality issues that have plagued the banking sector over the past five years have come to the fore front following a slowing economy and a weakening Rupee. The bank nifty index is a key index comprising of the largest bank stocks in India. It would prove useful to understand the key drivers of profitability of the components of this index which would throw light on the profitability of the banking sector at large. This paper studied the influence of key internal determinants on the profitability of bank nifty components over a ten-year period form 2007-2016. The profitability measure chosen was the Return on Assets. The internal determinants chosen for the study comprised of the logarithm of bank size as measured by stock market capitalization, a key lending measure the deposit/credit ratio, income measures that include interest income/average working funds and non-interest income/average working funds, a key productivity measure in business per employee, a key asset quality measure the %Net NPA and a measure of capital adequacy the capital adequacy ratio. Asset quality, capital adequacy, income measures and bank size proved to be the important drivers of profitability of bank nifty components. Stakeholders of banks should focus on these determinants as they seek to understand the rapidly evolving Indian banking landscape.

Keywords*: Bank Profitability, Determinants, Indian Banking Sector, Market capitalization, NPA, Capital Adequacy*
JEL Codes: G00, G20, G21, P34

MBAF03

THE ROLE OF FOREIGN DIRECT INVESTMENT (FDI) IN INDIA- AN OVERVIEW

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Abstract

FDI plays an important role in the Economic development in India, because it helps to bring close the different economies of the country by investing capital through FDI in various areas like manufacturing, infrastructure, transport, technology, productivity and hospitality etc. Foreign capital is seen as a means of filling in gaps between domestic savings and investment. India attract record levels of foreign investment is an explicable source of pride. Between the market size, investment reform, and economic growth rates, India has the right mix of openness and chance. Yet, India seems to be suffering from many restrictions and challenges regarding opening its markets completely too universal investors. Some of the major challenges in the area of FDI are: political instability, infrastructure Facility, tax policies, corruption, governmental regulations and so on. The present article has focused on the trends of FDI Flow in India .and the patterns of foreign investment into India.

***Key Words**: Foreign Direct Investment, Sectors, Challenges*

MBAF04

CAUSAL RELATIONSHIP BETWEEN STOCK MARKET PERFORMANCE AND ECONOMIC GROWTH IN INDIA

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Abstract

The study investigates the causal relationship between the stock market performance and economic growth of India. The study uses yearly data for the period from 2001 to 2017. The variables like stock index price and market capitalisation is chosen as proxy for stock market performance and Gross Domestic Product as a proxy for economic growth. In order to assess the causal relationship between the stock market and economic growth Pair-wise Granger causality test was applied. Though there are numerous studies which explained the bilateral relationship between economic growth and stock market performance, there are no studies conducted with the variables chosen as in this study. The result shows that stock market performance granger causes economic growth of India during the study period, but economic growth does not granger cause stock market performance. This result explains that stock market's performance has an influence over economic growth in India.

***Keywords:** Stock market, Economic Growth, Market capitalization, Gross Domestic Product and Causal relationship.*

MBAF05

A STUDY ON RISK ADJUSTED PERFORMANCE ANALYSIS OF MIDCAP EQUITY FUNDS ALONG WITH THEIR BENCHMARKS

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Abstract

Mutual fund is a professionally managed financial vehicle that mobilizes funds from various investors, where these mobilized funds are invested in a diversified portfolio of market and securities such as equity shares, money market instruments, government and corporate bonds based upon the investment objective of the investors. Mutual funds serve as a best investment avenues for a large number of investors in recent days. Investors are dumped with lots and lots of mutual fund schemes which are readily available in the financial market. Even though every Investor is Unique, the common problem faced by them is the deciding factors, which will help them to choose the right scheme based on their Investment objective. Return and Risk becomes the top priority factor for almost every investor while choosing schemes. It is necessary for all the investor to know whether the scheme generate good amount of returns for the risk taken. This can be achieved by calculating Risk adjusted ratio, which are the reflection of fund performance. This article deals with the study of midcap equity funds as a whole in terms of Risk adjusted Returns such as Sharpe, Treynor, Alpha and Information Ratio along with the Average returns, standard deviation and Beta. Fund performances are measured by their benchmarks. It is necessary for every fund to beat its benchmarks. So, Here the funds compared with their respective benchmarks to get a clear picture about the performance of the midcap funds with respect to risk and returns.

Keywords: *Risk adjusted Return, Benchmark, Performance.*

MBAF06

PREDICTION OF BOND RATING IN INDIA USING LOGIT MODEL

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Abstract

In this paper, we have attempted to estimate a logit model to predict bond ratings. The prediction of bond rating assumes significance because investors can use this information to adjust their portfolios to get better results. Also, issuing companies can also utilize this information to reconsider and realign their capital budgeting and investment policies. The financial data on issuing companies used in the study, was taken from the money control. Various financial parameters and ratios of 10 companies were considered to estimate a logit model. The companies having rating above AAA+ (CARE rating for long-term debt) were considered as having a good rating and the ones having rating AA+ and below were considered as having a poor rating. The model correctly classified the bond ratings of 97 per cent of the sample companies. The model was also used to predict the ratings of 10 holdout companies and it was found that the ratings of 8 out of 10 companies were correctly predicted. Two variables, namely, interest cover and net sales to total assets, were found to be significant. It is suggested that the model building exercise be taken up on a continuous basis as the significance of variables may undergo a change over time.

Keywords*: Bond Rating, Logit Model, Interest Coverage, Net Sales.*

MBAF07

RELATIONSHIP BETWEEN SERVICE QUALITY AND CUSTOMER SATISFACTION IN AIRLINES INDUSTRY

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Abstract

The relationship between the service quality and customer satisfaction have been studied in airlines settings for more than decade. The relationship have been examined with service quality as first order dimensions on the impact with customer satisfaction. However, the studies in measuring Service Quality as second order model is gaining importance in other service settings and is not applied in airlines settings. Therefore, there is need for study in measuring service quality as second order. The previous studies on second order service quality is measured by reflective – reflective model which is criticized on several reasons and recommended to use formative models . The study attempts to measure service Quality as first order reflective and second order as formative model and establish the relationship with customer satisfaction. PLS –SEM technique was used to measure the hierarchical model of service quality with five dimensions as first order reflective and overall service quality as second order formative construct. The study found that positive relationship between service quality and customer satisfaction in airlines settings.

Keywords: *Airlines , service quality , customer satisfaction , second order , reflective and formative construct.*

MBAF08

INVESTMENTS: ANALYSIS AND BEHAVIOR

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Abstract

The finance and investment decisions for some decades in the past are based onthe assumptions that people make rational decisions and are unbiased in theirpredictions about the future.But we all know that sometimes people act in obvious irrational way andthey do the mistakes in their forecasts for the future. Investors could be the case ofirrational acting to. For example, people usually are risk averse, but the investors willtake the risk if the expected return is sufficient.Over the past decade the evidence thatpsychology and emotions influence both financial and investment decisions becamemore and more convincing. Today not only psychologists but the economists as wellagree that investors can be irrational. And the predictable decision errors can affect thechanges in the markets. So it is very important to understand actual investors' behaviour and psychological biases that affect their decision making.Important psychological aspects and characteristics of investors' behaviour discussedin this article are Overconfidence, Disposition effect, Perceptions of investment risk, Mental accounting and investing, and Emotions and investments.

Keywords: *Investment decision, Risk averse, Overconfidence, Perceptions, Mental accounting.*
JEL Classification Codes: G410

MBAF09

STUDY ON STOCK MARKET INTEGRATION WITH REFERENCE TO STOCK EXCHANGES IN ASIA

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Abstract

This article attempts to examine the short and long-run relationship among the selected six Asian stock exchanges. It covers the monthly data for the period 2013-2017. The research methodology tools include Correlation, regression, Augmented Dickey-Fuller (ADF) test as well as Phillips-Perrson (PP) test for testing of stationarity and Johansen Co integration test and Granger Causality test in order to find the co integration among selected six Asian stock exchanges. There is a positive correlation between BSE and other Asian stock markets where NIKKEI and TAIWAN have strong positive correlation with BSE and BSE is dependent on other Asian stock markets. The index return series are found to stationary by first order differencing for both ADF and PP test. Johansen Co integration test states there exists 2 co integrating equations resulted by trace test and 1 co integrating equations as revealed by Maximum Eigen value test at the 0.05 level of significance show the long run association of stock markets. Granger Causality test states that there is a one way causality from BSE and SHANGHAI, HANGSENG and NIKKEI, TAIWAN and SHANGHAI and two way Causality for NIKKEI and BSE, TAIWAN and HANGSENG, TAIWAN and NIKKEI Whereas other stock exchanges shows no Granger Causality which shows the short run relationship among Asian stock exchanges.

MBAF10

A STUDY ON NETWORK MANAGEMENT IN SOFTWARE DEFINED INTERNET OF THINGS (SDIOT)

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Abstract

With the rapid growth of hi-tech world, the network and its operations are playing the vital role in day to day activities of individuals and organizations. The network users are increasing day by day in a hasty manner. In addition to Internet of Things (IoT) connects more and more devices and supports an ever-growing diversity of applications. The heterogeneity of the devices, unified network management for large scale of the network, information sharing and protecting the information are the main challenges of today's network environment. The network management is a broad range of activities including traffic control, topology management, security and energy management. Software Defined Internet of Things (SDIOT) provides the promising solutions to the traditional networks and also provides a new feature into the networking environment. The integration of SDN architecture into the Internet of Things (SDIOT) is providing an essential controlling the entire network and ensures the efficiency of the large scale network. This paper highlights the key features and open research challenges of various network management in SDIOT.

Keywords: *Software Defined Network, Internet of Things, Topology, Security.*

MBAF11

UNDERSTANDING INDIVIDUAL BEHAVIORAL ASPECTS AND ATTITUDES TOWARDS FINANCIAL PLANNING AND INVESTMENT MANAGEMENT

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Abstract Over the past couple of years Indian economy has seen unprecedented economic boom leaving more surplus money in the hands of people. Investors can use financial planning route to meet their future financial goals. The problem is that they do not plan for their finances. This study is based on to analyze the preference and perception of various financial products while creating the investor's portfolio. Areas such as CIDCO Industrial Estate, K. Pudur, Simakal, Kelavasal, Uthangudi are visited, Questionnaire is distributed in hard copy as well as through google form link and data from 150 respondents are collected. The objective of the study is to find the preference and perception of the various financial products while creating the financial plan. The structured questionnaire is prepared, it contain 14 items which include 4 variables such as Investor optimism, Risk attitude, Confidence level of investor, involvement in market. It is found that the investors are interested in creating new investment into their portfolio irrespective of the age. 35% of the investors are investing 6 to 10% of their savings from their income. The investors are also accepting that they are willing to invest in the companies with stable returns. About 32.7% of the respondents earn 11 to 15% from their portfolio. Through Cluster Analysis the respondents are grouped of which majority of the respondents are strategic investors who do not invest regularly but they have plan to increase their portfolio in the forthcoming months and they are strongly agreeing that the value of shares in their portfolio will increase in the next 6 months.

MBAG01

IOT USING AGRICULTURE MONITORING AND PREVENTING OF WILD ANIMALS ENTERING INTO THE AGRICULTURAL FIELDS

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Abstract

The Internet of Things allows people and things to be connected Anytime, Anyplace, with anything and anyone, ideally using any path/network andanyservice. Internet of Things (IoT) plays a crucial role in smart agriculture. Smart farming is an emerging concept, because IoT sensors capable of providing information about their agriculture fields. The paper aims making use of evolving technology i.e. IoT and smart agriculture using automation. Monitoring environmental factors is the major factor to improve the yield of the efficient crops. The feature of this paper includes monitoring temperature and humidity in agricultural field through sensors usingDHT11 Sensor. IR Sensor is Interfaced With Arduino to detect animals and intimates to the farmers mobile using Wi-Fi IoTModule.

Keywords*: Soil moisture sensor, IOT, Cloud networking, Wi-Fi networking*

MBAH01

AN ANALYSIS OF FACULTY COMPETENCIES IN HIGHER EDUCATION INSTITUTIONS

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Abstract

In the knowledge explosion era, the developing country like India has to concentrate on higher education for the development of the nation. India is facing the lot of challenges to meet out global competition in the higher education field. It creates an urge for the faculty members to be competent enough in teaching. So, the faculty members are expected to have the competencies at various levels of knowledge, skills, attitude and behaviour to address the demand of all the stakeholders in educational institutions. This research was undertaken with the objective of assessing the faculty competencies of higher education institutions. A questionnaire was developed to assess the faculty competencies. The samples are drawn from Arts and Science and Engineering colleges in Coimbatore, Erode and Tiruppur districts. Stratified random sampling method was adopted for the study. It was found that the faculty members have competencies like Knowledge and Skills of the faculty members, awareness and usage of Information Communication and Technology (ICT), Professional Development and Teaching Practice, Faculty Belief and Attitude. Further it was found that there was no difference between the competencies of the faculty members of Arts and Science College and Engineering Colleges.

Keywords: *Competency, Higher education, Knowledge and Skills, Assessment.*

MBAH02

A STUDY ON IMPACT OF HRD PRACICES ON ORGANISATIONAL COMMITMENT WITH REFERENCE TO PRIVATE LIFE INSURANCE, COIMBATORE

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Abstract

Human Resource Development (HRD) is fundamental in generating and implementing these competencies. That is, HRD can give the tools needed to manage and operate the organization right from production management, marketing, and sales to research and development in order to be more productive. The main objective of the present research was to examine the nature of relationship among human resource development practices and individual commitment towards their organization in Private Life Insurance Companies in Coimbatore. The effect of HRD practices on the organizational commitment level of the individuals has been proved based on this empirical work. This work adds value to the existing literatures. This tries to reinforce the HRD-Commitment linkage in Indian context with special reference to Life insurance industry. This research would help the HR managers in understanding the specific HRD practices influencing commitment through which managers can take necessary action. The action would improve the HRD practices and commitment of the individuals resulting in better organizational and individual performance.

Keywords: Human Resource Development, production management, organizational commitment, organizational and individual performance.

MBAH03

THE ETHICS OF WORKPLACE ROMANCE AND SEXUAL HARASSMENT POLICY

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Abstract

This paper explores four published articles that report on results from research conducted on the ethics of workplace romance and sexual harassment policy. Meiniero, Jone (2013) examined the ethical implications of work place romances that may subsequently turn into sexual harassment through the use of social media technologies. Other articles surveyedabout the appropriate or inappropriate workplace behaviour consistent to corporate code of conduct which in order to protect employee rights. This article studies Meiniero, Jone (2013) research in relation to 3 other research articles to suggest that it is necessary to define an ethical model to represent what is appropriate and inappropriate workplace behaviour, in the prevalence of workplace romance.

Keywords: *Workplace Romance, Sexual Harassment, Ethical workplace behaviour.*

MBAH04

STRESS AND ORGANIZATIONAL COMMITMENT: A COMPARATIVE STUDY AMONG TEXTILE EMPLOYEES

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Abstract

Today, Human Resource is considered to be the most important asset in any organisation. Every business organisation depends for its effective functioning not much on its material or financial resources but more on the human resource. As only man has the ability to think, feel, show satisfaction or dissatisfaction, resentment or pleasure, resistance or acceptance for all types of managerial actions. The work environment has become a high stress environment, in almost all organizations cutting across industries. Employees are experiencing high level of stress due to various factors such as heavy workload, tight deadlines, high targets, type of work, lack of job satisfaction, long working hours, pressure to perform, etc. Due to this the Organizational commitment level of employees has decreased as organisational commitment plays a very large role in determining whether a member will stay with the organization and zealously work towards organizational goals. This study attempts to analyses the effect of stress on Organizational Commitment. The analysis revealed that employees are facing unrealistic time pressures, not able to cope up with the change in work, don't have clarity about their job. Though it is a fact that most of the employees are stressed at work due to various factors, but by implementing proper practices can lead to the better organisational commitment.

Keywords: *Stress, Organisational Commitment, Unrealistic time pressure, tight deadlines, Zealously etc.*

MBAH05

SOCIAL INTELLIGENCE: A TRENDING STYLE FOR CONFLICT MANAGEMENT TOWARDS RETENTION OF EMPLOYEES IN MULTINATIONAL CORPORATE COMPANIES OF TAMIL NADU, INDIA

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Abstract

Retention of talented employees is a most challenging task in today's Business world. It is observed from the literature that social intelligence incompetence prevents the employee to not only get sustained in an organization but also effective conflict management. According to Erik Erikson's theory of psychosocial development, a conflict is a turning point during which a person struggles to obtain some psychological quality. It is necessary for an individual to collaborate in teams where there are chances of conflicts and hence it can sometimes be managed when the social level of individual is good that they are able to manage the situations understanding people's needs. A scientific research gap on relationship between the effect of different personality traits on conflict management and Sustainability of the employee in the organization has been found through the literature which requires a certain amount of self-insight and a consciousness of one's own perceptions towards organization growth. This study bridges the gap by measuring the key personality traits that renders a comprehensive view of the improvement in navigation and negotiation of complex social relationships for effective use of People skills. The study is carried out in three phases. In the first phase, key features of distinct dimensions of Social management styles on conflict management for successful retention of employees in an organization were empirically analyzed. The second phase focuses on the Influential Factors like Manipulation, Empathy and Social irritability and Social Intelligence test towards achieving sustainability of employees in the organization. The third phase focuses on key aspects like Social Awareness, Social Cognition and Social Facility to improve social Intelligence. Assuming that questionnaire analyzed during three phases hold greatest empirical sway over the prospects of social management styles on conflict management for the retention of employees, this study renders awareness of situations, social dynamics that govern them, knowledge of interaction styles and strategies that can help a person achieve his or her goals in dealing with others. Based on survey responses from a representative sample of 50 professionals, the findings support that the Social Intelligence is the key factor that aligns the retention of employees and effective social management within an organization.

Keywords: *Retention of Talented Employees; Conflict Management; Social Intelligence .*

MBAH06

EFFECT OF BRAND FACTORS TO INCREASE BRAND VISIBILITY AND OUTREACH

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Abstract

This study examines the brand factors that helps in outreach of the brand and it is recognized that top brands face unique challenges which affect their growth and visibility and hence, diminish their ability to contribute effectively to sustainable development. The impact of these among other challenges has led to less reach to target audience due to intense competition. Branding the product/program/event of an organization is the main thing which must be focused in an organization to reach out to target audience and to serve them. The study aims at analysing the standard brand factors that are influencing every brand outreach & visibility and analysing how the optimization of the factor time in posting our contents in social media helps in increasing the length of reaching out.

Keywords: *Brand Outreach, Target audience, Time Optimization, Visibility.*

MBAH07

POLITICAL EMPOWERMENT OF WOMEN - SELF HELP GROUPS AS A MEANS: A STUDY IN COIMBATORE DISTRICT

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Abstract

SHGs are small informal associations created for the purpose of enabling members to reap benefits out of mutual help, solidarity, and joint responsibility. Through SHGs a women could empower themselves not only economically but also politically, socially and culturally. This paper focuses on Political empowerment of women through SHGs. Political empowerment is the need of the hour, which focuses on the power gained by women, helps in making effective decisions and Political Involvement

Keywords: *Political Empowerment, Self Help Groups, Political involvement.*

MBAH08

THE EFFECT OF THE DIMENSIONS OF PSYCHOLOGICAL CAPITAL ON ORGANIZATIONAL SILENCE AMONG NURSES IN KERALA

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Abstract

The purpose of the study was to investigate the effect of Psychological Capital on Organizational silence among health care employees in Kerala. The psychological capacities and competencies of the health care employees determine the effective and efficient health services in the hospital. Organizational silence is a new phenomenon that is posed in the area of human resources that explains as consciously withholding of works, ideas, knowledge and thoughts towards organizational development by the employees. The target population of the study consists of 300 nurses who work in different hospitals in Kerala. The result of the study shows that there is a significant negative relationship between Psychological Capital dimensions and organizational silence among health care employees. The results suggest that systematic efforts to build psychological capital in health care sector would be valuable and that will help the organization to ensure success in all their activities.

Keywords: *Organizational Silence, Psychological Capital, Positive Organizational Behaviour*

MBAH09

A STUDY ON EMOTIONAL INTELLIGENCE FOR EMPLOYEE EXCELLENCE IN ASHOK LEYLAND, ENNORE

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Abstract

A Study on Emotional Intelligence for employee excellence in Ashok Leyland (Ennore) Chennai was conducted with the main objective to analyze Emotional Intelligence for employee excellence followed by secondary objective's to determine employee's awareness towards Emotional Intelligence and to evaluate determinants of Emotional Intelligence of employees at workplace. The variables taken for the study were Self-

awareness, Self-regulation, Self-motivation, Social awareness, Social skills and Emotional excellence. The sample size of 120 respondents using descriptive research design the statistical tool used were Descriptive statistics, Reliability statistics, Factor analysis, t-test, Chi-square, ANOVA method, Friedman test, Test of Normality, Correlation and Multiple Regression. The findings of the study revealed that employees were emotionally aware and they understand the emotion of themselves and their colleagues. For the identified findings the proposed suggestions were the Managers and Superior to spend little more time in assistance and coordination so that subordinates understand the real essence of Emotional Intelligence.

Keywords: *Self-awareness, Self-regulation, Self-motivation, Social awareness, Social skills and Emotional excellence.*

MBAH10

GOING GREEN THROUGH GREEN HRM, A STUDY AT WIND BASED ENERGY COMPANIES IN CHENNAI

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Abstract

Green Human Resources Management (Green HRM) is the use of HRM policies to support the sustainable use of resources within organizations. The term "Green HRM" is most regularly used to refer to the concern of people management policies and practices towards the broader corporate environmental schedule. In fact, it refers to the policies, practices and systems that make employees of the organization green for the benefit of individual, society, natural environment, and the business. Green HRM involves incorporating environment-friendly HR policies and initiatives that could result in greater efficiencies and better employee engagement and at the same time help organizations to reduce employee carbon footprints in the processes, job and day-to-day functioning of the enterprise.

Green HRM as a term is used to all possible HR policies that could contribute to an organizations environmental agenda. Green HRM policies promote environmental sustainability and wise conservation of resources. Green Human Resource Management will play an important role in every industry to resolve environmental related issues by adopting Green HR policies, practices and providing training and awareness programs among employees. There are various Green HRM practices like Green Recruitment, Green Training, Green Performance Management and Green Pay and Reward systems. The various benefits of implementing Green HRM includes improved public image, increase in productivity, improvement in sustainable use of resources etc., The research was undertaken to identify the various possible ways through which Green HRM can be implemented at wind based energy companies in Chennai. The primary objective of the study was to analyze whether these companies can go green by adopting Green HRM practices and the secondary objectives were to find out the factors that influence on the interest level in welcoming Green HRM to the industry and to suggest best Green HRM policies. Primary data was collected through a structured questionnaire from 130 respondents through convenient sampling method. The data collected were analyzed with the help of statistical tools viz. percentage analysis, chi- square test and paired sample t test and cross tabs. It was found from the research that age group of employees plays a vital role in initiating GRM practices and the employees show a positive attitude towards protecting the environment

Keywords: *Green HRM, Green Training, Sustainable, Green Performance Management .*

MBAH11

A STUDY ON COST/BENEFIT ANALYSIS ON RECRUITMENT, SELECTION AND ON BOARDING PROCESS

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Abstract

Human resource is an asset to any organization to sustain their dominance and to obtain competitive advantage by ensuring that there is a good long term performance. The limitations of the recruitment process are cost, time and choice. All the organization looks down to cut down their recruitment, selection and employment cost. This article is all about the expense and the results on medium and long term over the recruitment process. This article also shows the importance of cost in choosing the better practices of recruitment, selection and employment. This explains about the various sources of recruitment and the cost associated with an private organisation in Coimbatore. Here comparison of three years data have been take to build an predictive model. It also gives a clear idea what all sources can be continued and what all sources has to dropped immediately to reduce the cost.

Keywords: *Textile sludge, pavers, concrete*

MBAH12

A STUDY ON EMPLOYEE ENGAGEMENT BY USING DEMOGRAPHIC FACTORS AND STUDY VARIABLES AT MAX FASHION – CHENNAI

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Abstract

Employee engagement is the level of commitment and involvement of an employee has towards their organization and its values. An engaged employee is aware of business context and works with colleagues to improve performance within the job for the benefit of the organization. It is a positive attitude held by the employee towards the organization and its values. The paper focuses on how employee engaged is an antecedent of job involvement and what should company do to make the employee engaged. This study is conducted at max retail private limited to measure the employee engagement in the organization towards their job and we learned that engagement activities are conducted once in a month. This study has been conducted for the period of the two months and answers were collected within the employees of max private Ltd. The collection of data is done through a questionnaire.

Keywords: *Employee engagement, Variables, Performance, Organizational commitment, Organizational Involvement.*

MBAH13

A STUDY ON WORKPLACE SPIRITUALITY AND ITS IMPACT ON PERFORMANCE IN ABT DAIRY, COIMBATORE

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Abstract

The purpose of this research is to study the workplace spirituality and impact its impact on work performance. Workplace spirituality is classified into elements and corresponding impact outcomes are also classified in aspects and the descriptive research was carried among the employees of a Dairy industry .with a sample size of 109 ,the questionnaire with36 variables was circulated among the respondents and the response are

collected ,and the result from the analysis predicted that the employees of Dairy are having positive relationship between workplace spirituality and performance thus the elements of workplace spirituality affect the performance .thus the factors of workplace spirituality such Inner life, sense of community, meaning work ,alignment with organizational goals are important for establishing a good workplace spirituality within and outside the organization and these results in high work performance among the employees in the dairy industry.

MBAH14

DISCRIMINANT ANALYSIS – A TOOL FOR PREDICTING AVERAGE AND SUPERIOR PERFORMERS AMONG BUSINESS SCHOOL TEACHERS

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Abstract

In this paper, discriminant analysis was used to predict the competencies that distinguish average and superior performers. The variables of knowledge, skills, knowledge update abilities, ICT abilities, use of different teaching methods, organising abilities, research and development abilities and knowledge dissemination abilities was administered the Discriminant Analysis test. The data was collected through a structured questionnaire from permanent faculty members working in University affiliated Business Schools in urban Bengaluru. The result indicated a significant eigenvalue (λ=1.496) and the degree of association between the variables and canonical correlation was found to be strong (η = 0.774). The significance of the model was tested with Wilk's Lambda. The lambda (Λ = 0.401) illustrated that the model strongly discriminates between average and superior performers. The classification results indicate that overall 94.2% of the data were corrected classified. Comparison of the model with Maximum Chance Criterion (MCC) method indicated that the Discriminant equation has a good predictive capacity.

Keywords: *competencies, discriminant analysis, average and superior performance.*

MBAH15

EXPLORING THE COMPETENCIES OF BUSINESS SCHOOL FACULTY MEMBERS IN BENGALURU – AN EMPIRICAL STUDY

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Abstract

The main characteristic feature of the 21st century is the dynamic combination of globalization and digital technologies. The pace at which information transfer is happening has distorted the traditional boundaries of businesses, thereby placing greater responsibilities on the educational institutions to meet the new challenges. In view of these challenges, expectations from faculty members are high. Therefore, the need of the hour is to recognize and develop the competencies of teachers and to help the teachers achieve success in this endeavor. The main objective of this study is to explore the competencies of Business school faculty in the domain of knowledge, skills and abilities. The review of related literature helped explore and identify an all-inclusive list of competencies for teachers. Full-time faculty working as Assistant Professors, Associate Professors and Professors in University affiliated institutions in urban Bengaluru were the focus of the study. A structured questionnaire was used for data collection. The responses were rated on a numerical score based on a 5-point Likert scale and competency proficiency scale was used for analysis. The analysis indicated that 57.9% of the faculty members are proficient and 33.7% are expert in the knowledge domain. More than 62% are masters while 37% are expert in the skill domain. The study also indicates that 51% are learners and another 48% are practitioners in their various abilities.

Keywords: *Proficiency scale, knowledge, skills and abilities.*

MBAH16

A STUDY ON EMPLOYEE SATISFACTION AT ROOTS INDUSTRIES INDIA LIMITED

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Abstract

Employee satisfaction represents one of the most key challenges faced by the managers today when it comes to managing their employees. Employees are the most valuable resource for all organizations; the longer an employee works for a company the more valuable it becomes. Employee satisfaction is all about employees being committed to the success of the organization with a strong belief that working with that particular organization is their best option. The aim of the study was to find employee satisfaction. This study also finds out various factors underlying job satisfaction. To achieve the aim of the study questionnaire survey was used. Employee Satisfaction is one of the major interest to the field of organizational behaviour and the practice of HRM. It reflects employee's attitudes towards their job and commitment to an organization. Employee Satisfaction refers to one's feelings or state of mind regarding the nature of their work. It describes how content an individual is with his or her job. Employee Satisfaction refers to a person's feeling of satisfaction on the job, which acts as a motivation to work. It is not self-satisfaction, happiness or self-contentment, but satisfaction on the job.

Keywords: *Job Satisfaction, Employee Loyalty, Attitude, Organizational Commitment, Employee empowerment.*

MBAH17

A STUDY ON WORKPLACE ATTITUDE OF GEN-X AND GEN-Y in RETAINING THE EMPLOYEESIN SALES AND SERVICE COMPANY

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Abstract

Workplace attitude is an important tool in creating a harmonious workplace. The purpose of this study is to analyze the factors that influence the attitude of the employees in the work place in respect of their generation. A new generation of employees known as Gen Y employees who are more likely to work with the Generation X employees are studied. The managers are required to deal with the possible generational differences, their skill gap, characteristics which helps the company to maintain productivity and workforce stability.The main objective of the study is to know the factors that influence the retention of the employees among different age group and to offer suggestions to manage the high turnover among the Gen Y employees.Three work place attitude constructs are used to examine the potential generational differences, Perceived work environment, perceived work value, strategic leadership to reduce the turnover intention.

Keywords: *Gen X, Gen Y, workplace attitude, Employee engagement, Generational differences, perceived work environment, perceived work values, strategic Leadership.*

MBAH18

A STUDY ON ORGANIZATION COMMITMENT AND ITS IMPACT ON EMPLOYEE PERFORMANCE

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Abstract

In today's competitive world the commitment of each and every employee is important for the overall performance of the organization. It may be assumed that high level of satisfied employees towards work are more committed to the organization and it also enhance the performance of the employees based on this attitude. In the present competitive environment no organization can perform at the maximum level, unless each employee in the organization is committed to the objectives of the organizations. Hence, it is important to understand the concept of commitment and its influence for feasible outcome. Committed employees develop a bond with an organization and that creates better organizational performance. The study focuses on the level of Commitment of employees which is an important instrument for improving the performance of organizations. Convenience sampling was used for data collection from 108 employees. The data collected was analysed by developing suitable hypothesis. Correlation, Anova, Independent sample T test was used to access the impact of constructs. The three commitments (Affective, Normative, and Continuance) have been taken as independent variables and Organizational Performance as the dependent variable.

Keywords: *Organizational Commitment, Employee Performance, Affective commitment, normative commitment, Continuance commitment*

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MBAH19

STRESS AND ORGANIZATIONAL COMMITMENT: A STUDY AMONG TEXTILE EMPLOYEES OF KITEX LTD, ERANAKULAM, KERELA

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Abstract

Today, Human Resource is considered to be the most important asset in any organisation. Every business organisation depends for its effective functioning not much on its material or financial resources but more on the human resource. As only man has the ability to think, feel, show satisfaction or dissatisfaction, resentment or pleasure, resistance or acceptance for all types of managerial actions. The work environment has become a high stress environment, in almost all organizations cutting across industries. Employees are experiencing high level of stress due to various factors such as heavy workload, tight deadlines, high targets, type of work, lack of job satisfaction, long working hours, pressure to perform, etc. Due to this the Organizational commitment level of employees has decreased as organisational commitment plays a very large role in determining whether a member will stay with the organization and zealously work towards organizational goals. This study attempts to analyses the effect of stress on Organizational Commitment. The analysis revealed that employees are facing unrealistic time pressures, not able to cope up with the change in work, don't have clarity about their job. Though it is a fact that most of the employees are stressed at work due to various factors, but by implementing proper practices can lead to the better organisational commitment.

Keywords: *Stress, Organisational Commitment, Unrealistic time pressure, tight deadlines, Zealously etc.*

MBAH20

A STUDY ON WORKSTRESS AMONG BANK EMPLOYEES WITH REFERENCE TO COIMBATORE

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Abstract

This research is made in purpose to find the stress of the employees. When considering about deep stress suffering bank employees are being affected more than any other employees. In this research whether the stress has any impact on physical as well as psychological wellbeing of an employee is tested. Stress is caused due to few reasons namely when the work is not up to level and no proper completion of work being the major causing agents of stress. And when one's thoughts go beyond the living style or when the individual need increases it will lead to stress. In this research the small part of the bank employees are taken as samples to find the work stress that too particularly that of the collection agents of the bank, because they meet many customers and being the physical evidence of the bank they ought to maintain good customer relationship and also, they handle money so there will be stress. Employees are the backbone asset for a bank, so management should be keen in having the employee in good health condition. This research is helpful in finding stress level of bank employees, and thus it is limited for banking industry, so this research may not be useful for other industry.

Keywords: *Stress, Engagement, Customer Relation, Mental agony.*

MBAH21

EXPLORING THE BEHAVIOURAL FACTORS IMPACT ON REAL ESTATE INVESTMENTS – USING REASONED ACTION APPROACH (RAA)

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Abstract

Real Estate investment is the smart investment which has the potential to change our life standard. Earlier studies reveal that the real estate investments are influenced by the irrational factors such as investor attitude, behavior, subjective norms and beliefs. This study aims to assess how these behavioural factors impact on individual investors' investment decision in real estate sector. With the foundation of Reasoned Action Approach (Behavioural Model – Fishbein & Ajzen, 2010), this study explores the psychology of investors and analyze which is the predominant factor stimulate investors towards investment decision. By using Structural Equation Modelling, new model has been constructed to understand the investors' behavior in real estate investments. Findings of this study will help the investors for better self-assessment about their investment decision and also its aids the real estate promoters to predict changing behavior of investor.

Keywords: *Investment, Behaviour, Attitude, Beliefs, Subjective Norms.*

MBAH22

STRESS AND ITS IMPACT ON WORK PERFORMANCE: A STUDY IN THE IT SECTOR

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Abstract

Stress in general terms refers to the pressures that people feel in their life. The presence of stress at work is almost inevitable in many jobs. When pressure begins to build up, it can cause adverse strain in emotions, thought processes, and physical condition. When stress becomes excessive employees develop various symptoms, as stress can harm their job performance and health and even threaten their ability to cope with the environment. Therefore it is important that stress, both on and off the job be kept at a level that prevents employees from becoming dysfunctional. This study investigates the factors that contribute to stress and its relationship to work performance

Keywords*: Stress, Well-being, Work Performance, Organizational stress, Stress management.*

MBAH23

A STUDY ON ENHANCING EMPLOYEE ENGAGEMENT THROUGH EMPLOYEE TOUCH-POINT

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Abstract

An effective planning is required to overcome cost over-run and time over-run problems in construction which could be achieved with the help of lean concept. The aim of lean is to maximize the value, in other words minimizing the wastes. Last Planner System(LPS) is one such lean concept developed in order to improve the project performance by reducing the inefficiencies faced in construction project. The objective of this paper to present the results obtained from implementing the Last Planner System in the construction of an apartment project. A list of constraints have been found out during constraint analysis and various remedial measures have been suggested for lookahead planning. Based on number of occurrences of constraints, root cause analysis was done to determine the causes for variation in Percentage of Plan Completed(PPC). The effectiveness and reliability of the project was found to be increased about 75% after implementation of Last Planner System(LPS). A list of success factors and barriers for improvement of project performance have also been listed.

Keywords: *Last Planner System, Look ahead planning, Constraint analysis, Root cause analysis, Percentage of plan completed*

MBAM01

ASSESSING RELIABILITY AND VALIDITY OF THE INSTRUMENT FOR MEASURING IMPULSE BUYING BEHAVIOURS

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Abstract

The purpose of this paper is to inspect the reliability and validity of the instrument constructed to measure the impulse buying behaviour of the customer. Analysis of published sources revealed that there are four constructs influences impulse buying behaviour. These includes window display, Mannequin Display, Floor Merchandising, Promotional signage which determines the dependent variable impulse buying behaviours. Through the literature review the researchers designed an instrument with 30 items which measures various elements of visual merchandising. The instrument was distributed to 85 customers walks in to Spar Hyper Market located at Brooke fields, and the response was collected on the various aspects of visual merchandising and their intention to buy using 5 point Likert scale. confirmatory, and exploratory factor analysis were used to examine the construct validity, and Cronbach alpha and test-retest were employed to examine the reliability of the instrument. The explanatory factor analysis showed 25 factors with 68.29% total variance and 0.88 Kaiser- Meyer-Olkin index. The results were also confirmed with confirmatory factor analysis. The reliability of the impulse buying behaviour instrument, as measured by internal consistency, was found to be satisfactory (Cronbach $\alpha = 0.94$).

MBAM02

CONSUMER ADOPTION OF ONLINE FOOD DELIVERY SERVICES: AN INVESTIGATION

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Abstract

Research background: In recent times, the cities in India are witnessing growing consumer adoption of online food ordering and delivery services. Statistics reveal that India's online food services sector is growing at the rate of 15 % every quarter in terms of daily food orders with the revenue touching US$ 7129 million in 2018. The space is highly competitive with many international, national and local players. Logistics, faster deliveries, wider selection of menu and competitive prices seem to be important in garnering competitive advantage and wider acceptance.

Research objectives: The data indicate that consumers of the country have welcomed the online food delivery services wholeheartedly. Hence the need for the study was felt to understand the factors influencing consumer adoption of such services, with special reference to Coimbatore city in the state of Tamil Nadu.

Research design: The study is descriptive in nature. The theoretical model is proposed from the hypotheses based on variables adopted from Technology Acceptance Model and Innovation Adoption Model, amongst others. Primary data is being collected from the respondents belonging to various consumer generations using a validated questionnaire. Simple random sampling method is adopted for sample selection. The significance of relationships among the constructs and the hypothesized model will be tested using statistical tools to arrive at meaningful insights.

Research implications: The results of the study will guide the marketers in framing appropriate marketing mix strategies in order to serve the consumers better as well as garner larger market share.

Keywords: *Online food delivery services, Consumer Adoption, Preferences, TAM, IAM,JEL classification: M31*

MBAM03

SPORTS BRANDING- AWARENESS AND PREFERENCE OF CUSTOMERS ON SPORTS BRANDS

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Abstract

The country's sportswear segment is largely unorganized with organized players constituting only around 30% of the market. Thus, there is need of research and analysing the level of awareness among the customers on sports brand. This study Focused to understand how the sports brand has been placed in the consumers mind on the basis of their competitive brands and it also focuses on how customers perceive decathlon brand for their sports choice. This study will help the sports companies to target their right customer segment in the market to give away the great sales figure. The study was carried out with decathlon and primary data was collected to understand and full fill the study objectives. A total sample of 1157 was collected and same was analyse to understand a comparative rating between the customer sport preference and their sport brand choice.

Keywords: *Sport, Sport branding, Customer awareness, Brand preference.*

MBAM04

DEVISING SALES STRATEGY FOR PREMIUM BIKES - A CASE STUDY APPROACH

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Abstract

This case study presents the scenario of premium bike segment in India and the importance of capturing new markets for this growing segment in automobiles. The case study aims at addressing the prominent difficulties in sales and generating sales leads for business growth. The case study was done in one of the premium bike chapter and with the identified problem statements the researchers identified three case questions which was addressed using three different approach. The study further explains the sales strategies used for one chapter of the premium bike and its relative outcome. The key findings of the case can be replicated in different chapters and also it can be used to teach sales and Marketing course in Management courses.

Keywords: *Premium bikes, Sales strategy, e-marketing, customers.*

MBAM05

THE TRANSFORMING FACET OF FMCG MARKETING IN RURAL STRATUM

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Abstract

The Indian rural market with its ample dimension and demand base offers a gigantic opportunity that companies cannot afford to ignore. We are a country with 1.12 billion of people who 70% live in rural areas which means more than 700 million people expanse around 6,27,000 villages. India's rural population comprises of 12% of the world's population presenting a huge, intact market. This paper vitally examined the present position of the Indian rural marketing in a current economic scenario. It analyzes the complications prevailed in rural marketing. It executes to hunt the opportunities, rural marketing strategies, problems and challenges. Due to media bang and increasing literacy levels, people in rural areas are becoming aware about their lifestyles and demanding better life. With increasing disposal incomes, the rural consumer has become more demanding and choosier in his purchase behaviour than ever before. Brand consciousness is on the rise and marketers have realized it. As urban markets are getting drenched for consumer goods, marketing executives are fanning out and discovering the strengths of large rural markets.

Keywords: *Rural Marketing, Rural Marketing Strategies, Opportunities*.

MBAM06

PATH ANALYSIS APPROACH ON THE FACTORS LEAD TO CONSUMER SATISFACTION TOWARDS THE PURCHASE OF WHITE GOODS

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Abstract

Consumer durables have come out as one of the top growing industries in India. Once perceived as luxury items have today become as an essential tool of each day use for the Indian middle class. The largest contributing sector among durables is white goods, also known as consumer appliances, like air conditioners, refrigerators and washing machines. Due to the emergence of globalization and liberalization there is a stiff competition among the white goods manufacturers, who are focusing attention in capturing the Indian markets. The manufacturers' part is not simply the production of the goods. But it is important for them to identify the consumers' needs and wants and satisfy them. The major objective of the research is to identify the factors that lead to overall satisfaction of the consumers towards their purchase of selected white goods viz refrigerators, washing machines and air conditioners, in Erode District. The study also attempts to evaluate the consumer's satisfaction towards their experience at the retail outlets and about the quality of after sales service provided by the authorized service centers of the manufacturers. Path analysis was done and from the path it was obtained that Show room ambience and the price and offers at show room will attract the customers to that show room. The service given by the show room will satisfy the consumers and leads to overall satisfaction towards the buying of selected White goods.

Keywords: *competencies White goods, Consumer behavior, satisfaction, purchase behavior,*

MBAM07

A STUDY ON IMPACT OF ADVERTISEMENT IN PRINT MEDIA IN EENADU PUBLICATIONS AT CHENNAI

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Abstract

The study of impact of newspaper of the readers and the effect of advertisement. in newspaper industry the major revenue is gained from advertisement. The preference of advertisement of the client depends on the circulation and the readership base. But in the current scenario the readers are shifting to various news platform such as e-paper, tv news channels, mobile apps etc. Primary objective of the study is to find the readers preferred medium to news consumption of the different age category and to find the preferred medium to advertise for the various category of product & service in various locations. The type of research used for this is Descriptive research. A well-structured questionnaire has been designed and data collection been done from Readers and the advertising Agency. To analyse the age category advertisement preferences test like correlation and the regression tests are used and to find the ad medium preferences percentage analysis were used. The result shows that print media is very effective medium to advertise for the age category of 46 & above and vernacular language paper advertisement in completely dominating in rural and also plays equal share in urban area people.

MBAM08

IMPACT OF KEY NOTEBOOK SUPPLIERS FOR CUSTOMIZATION ORDERS IN COIMBATORE CITY

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Abstract

The purpose of this article to learn an overview about the institutions buying behavior of customized notebooks. The main need is to understand the approaches done by stationery suppliers to capture the market. So, it has become a need to find out the key notebook suppliers in customization of orders under school institutions. The research carried out for this study is Descriptive research. The data is being collected from 50 school institutions in Coimbatore city by Convenience sampling technique. The instrument used for data collection was a structured questionnaire. Tools such as correlation, regression, independent sample t-test, chi-square, cross tabulation and pareto analysis is been used. The findings were there are more loyal customers to the major notebook suppliers in the city but still the institutions are not happy with the customization done by the current suppliers. Few attributes like price, quality and the credit period does not increase the satisfaction level but whereas attributes like Schemes/Offers provided and Customization are considered for the purchase intention. It also shows that the School logo, Other Customization and Company logo on the wrapper is contributing the main causes of Purchase. The suppliers could concentrate more on customized notebooks as it increases the purchase intention.

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MBAM09

FACTORS INFLUENCING CONSUMERS TO BUY ORGANIC FOOD PRODUCTS – AN EMPIRICAL INVESTIGATION

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Abstract

This article aims to attempt the factors that are influencing consumers to purchase organic food products in Coimbatore district. Awareness of organic food products has been in the developing stage and most of the people started to consume organic food products. Nowadays food is playing the major role in the human life. Consumers of food are started to find the quality food products which will not affect the health and body conditions. Consumers are started to avoid food products that are made of chemicals, pesticides and fertilizers. Organic food products created a good image in the mind of the consumer that these products are produced naturally without using chemicals. A sample of 115 respondents is selected and data are collected from the respondents using structured questionnaire. The result of the study revealed that three factors are playing primary role that are influencing consumer to purchase organic food products such as health, safety and environment friendly are playing the key role to purchase organic food products.

Keywords: *Consumer, Organic food, Health, Environment.*

MBAM10

A FRAMEWORK TO MEASURE THE IMPACT OF TRUST, COMMITMENT AND RELATIONAL OUTCOME WOTH THE LOGISTICS SERVICE PROVIDERS

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Abstract

Today, over 60 per cent of the worlds deep-sea general cargo is transported in containers; however, some routes, especially between economically strong and stable countries, are containerized up to 100 per cent (Jane, 2000) . Container terminals serve as an interface between different types of transportation systems. In today's highly competitive environment, most terminals in the world are working at or close to capacity. Among the changes that have been wrought have been increases in channel depths to handle larger containers, as well as the lengthening of the berths and the widening of the channels to accommodate a greater number of container-ships at the same time. Across this juncture, its imperative that the logistics service providers must take extra effort in maintaining the trust , commitment and the relational outcome with their clientele. This paper intends to measure the relationship between the above said factors with few logistics service providers in India and the model is tested using PLS method.

Keywords: *Trust. Commitment , Relational Outcome etc.*

MBAM11

PURCHASING BEHAVIOUR OF FMCG PRODUCTS BY RURAL CONSUMER WITH REFERENCE TO VILLUPURAM CITY

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Abstract

The Fast-Moving Consumer Goods (FMCG) sector in rural India is estimated to cross US$ 100 billion by 2025 and in continuation to this, the Rural FMCG market is anticipated at a CAGR of 17.41% to US$ 100 billion during 2009-2025. This market accounts for 40% of overall FMCG market in India in terms of revenue. This data lays the road to the need for the study werethe Industry units should know the decision making on buying, reasons for brand switching with which the customer analysis can be done and this will lead to the planning of their product line. The aim would be to find out the purchasing behaviour of rural consumers regarding the FMCG products. The primary data will be collected through a survey with the help of a structured questionnaire. Statistical tools like Chi-square test, Factor analysis, Garrett's Ranking Method will be used to analyse the data. For the research, 150 respondents will be selected as size of sample in super market and retail shop in semi-rural area in Villupuram. The expected finding would be which is the most influencing factor that affects the buying behaviour of rural consumer.

Keywords: *Brand Switching, JEL Classification, FMCG, Purchase Behaviour, Semi-Rural* JEL Classification-D100, M31, R21, R22

MBAM12

INDUSTRY CONSTRUCT OF PACKAGED GHEE IN RURAL TAMIL NADU - AN EMPIRICAL INVESTIGATION

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Abstract

The study of industry construct of packaged Ghee in rural Tamil Nadu is carried on with a view to know and understand the Marketing Mix of the packaged Ghee industry and how r distribution channels to meet the expectations of retailers and Customers in rural market. The primary objective of the study is to identify the lead players in packaged Ghee in SKU's of 1 litre and below format. The type of research used for this is Descriptive research. A well- structured questionnaire has been designed and data collection been done from all retail outlets from the place where the study has been conducted. Non – Probability convenience sampling has been used to select samples due to the availability of stores in different retail formats. The sample size was 425. The study has been undertaken in four different rural areas namely Perundurai, Bhavani, Thiruchengode and Mettur. The study objectives were found using relevant statistics and discussed in the article.

Keywords: *Packaged Ghee, Customer preference, Retailer preference, Marketing mix*

MBAM13

LAUNDRY CARE IN INDIA: AN INQUIRY INTO THE QUALITY OF DELIVERED SERVICE

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Abstract

This article aims to attempt the factors that are influencing consumers to purchase organic food products in Coimbatore district. Awareness of organic food products has been in the developing stage and most of the people started to consume organic food products. Nowadays food is playing the major role in the human life. Consumers of food are started to find the quality food products which will not affect the health and body conditions. Consumers are started to avoid food products that are made of chemicals, pesticides and fertilizers. Organic food products created a good image in the mind of the consumer that these products are produced naturally without using chemicals. A sample of 115 respondents is selected and data are collected from the respondents using structured questionnaire. The result of the study revealed that three factors are playing primary role that are influencing consumer to purchase organic food products such as health, safety and environment friendly are playing the key role to purchase organic food products.

Keywords*: Laundry care, service quality, customer satisfaction, quality perception, delivery of service*

MBAM14

INFLUENCE OF VISUAL MERCHANDISING ON IMPULSE BUYING BEHAVIOUR WITH REFERENCE TO SPAR HYPERMARKET, COIMBATORE

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Abstract

Visual merchandising plays very significant role in driving consumer sales in retail environment. The process of designing retail floor plans and attractive in-store displays in order to catch the attention of buyers and boost sales is called visual merchandising. The researcher in this study have explored the major dimensions of visual merchandising and also examined the influence of visual merchandising on impulse buying behaviour. Published resources indicates that window display, Mannequin Display, Floor Merchandising, Promotional signage are vital elements of Visual Merchandising which drives consumer sales. The researcher in this paper took the survey through the structured instrument and collected the samples from the customers of Spar Hypermarket located at Brooke fields. The instrument was prepared with 25 items with five constructs. Through application of regression the searcher has built the model to assess the influence of independent variables on the dependent variable. The study finally recommends list of variables which drives the consumer sales and provide feasible suggestions to the M/s SPAR Hyper Market on designing effective visual merchandising.

MBAO01

A STUDY ON MRP AND INVENTORY OPTIMIZATION IN BEST ENGINEERS PUMPS AT COIMBATORE

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Abstract

In the manufacturing sectors there are three vital components who are directly connected to the financial performance of a company. The three vital components are Raw Material, Work-In-Progress and Finished Goods which are in terms also known as Inventory. It is the direct asset to any company in the manufacturing sector. Inventory holds an average of 45% of company's capital and yields direct profit. Material requirements planning (MRP) is a production planning, scheduling, and inventory control system used to manage manufacturing processes. Most MRP systems are software-based, but it is possible to conduct MRP by hand as well plan manufacturing activities, delivery schedules and purchasing activities. This project shows the implementation of EOQ and inventory modeling which helped the organization to improve its inventory performance and material requirements. Inventory holds up the direct capital cost of any organization, hence it is important that inventory must be maintained in an optimum level in order to meet the demand and inventory carrying cost.

Keywords: *MRP, ABC,EOQ,PPC, Lead time forecasting.*

MBAO02

A STUDY ON SERVICES QUALITY AND CUSTOMER SATISFACTION IN SPAR HYPERMARKET-COIMBATORE

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Abstract

The purpose of the study is to determine the costumer satisfaction of service quality offered at SPAR hypermarket in Coimbatore city. The data was collected from 110 respondents through structures questionnaire by using five point likert scale and was analyzed using one sample t test and multiple regression. The five dimensions such as tangibles, customer knowledge, responsiveness, convenience (dependent dimension) and competence. The finding showed that the dimensions of service quality such as tangibles, customer knowledge, convenience Competence were positively related to customer satisfaction. The management should focus on competence dimensions to be ahead of the competitor.

MBAO03

A STUDY ON LAYOUT RE-DESIGNING AND TIME STUDY IN PUMP COMPANY AT COIMBATORE

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Abstract

The paper aims at analyzing the factor influencing the productivity delay in the reputed pump manufacturer located in Coimbatore. The root cause analysis was used to find the factors influence the productivity. Major influential factors were improper layout design which causes unwanted movements and defects in CNC department process 3. Minor influencer was the skill of the shop floor workers. This research focuses on the identification of cause and providing the appropriate solution for the better productivity. Layout re-designing, guiding machine, standardizing the time and labor skill comparison was used to improve the productivity. By layout re-designing, unwanted movements are reduced to a greater extent. Implementation of the guiding machine in the CNC department rotor shaft pressing process decreased the defective rates by 5% and improves the quality. Standardizing time helps the organization to work in the controlled environment. Skill comparison aims at bridging the skill gap of the employees. By which the productivity can be improved.

MBAO04

A STUDY ON OVERALL EQUIPMENT EFFICIENCY AND OVERALL LINE EFFICIENCY IN PUMP INDUSTRY AT COIMBATORE

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Abstract

Overall Equipment Effectiveness is one of the performance evaluation methods that are most common and popular in the production industries. Overall Equipment Effectiveness (OEE), Overall Line efficiency (OLE) and Overall labour effectiveness plays a vital role where performance and quality of the product are of importance to the organization. It intended for minimizing the breakdowns, increasing performance and quality rate and thus improving the effectiveness of the machine/system and labour. The availability rate of the machine, performance rate of the machine and quality rate of the products are considered as main parameters for maximizing the OEE of a manufacturing system. It is found that poor performance rate contributes more than availability rate and quality rate. The objective of this work is to enhance the overall equipment effectiveness (OEE) and overall labor effectiveness (OLE) in a manufacturing company by introducing the process change.

Keywords*: OEE, OLE, Improvement, Process Optimization & Production Improvement.*

MBAO05

A STUDY ON IMPACT DUE TO IMPLEMENTATION OF 5S IN A PUMP INDUSTRY AT COIMBATORE

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Abstract

5S is known as the 5 pillars which refer to Seiri (sort), Seiton (set in order), Seiso (shine), Seiketsu (standardize),and Shitsuke (sustain), This system is a good starting point for all improvement effort and maintaining work efficiency by the employees. This paper aims to determine performance factors and characteristics in industrial organizations and identifying the effectiveness of 5S implementation on organizational performance as well. Surveying method is used and data collection is done by distributing questionnaire to employees and there is a real need for empirical studies in field ,the results of this research paper is to analyzing the impact of the organizing performance, Consequently 5S techniques would strongly supportive for the organization to achieve continuous improvement and higher performance.

Keywords: *5S, productivity, seiri, seiton, seiso, seiketsu, shitsuke.*

MBAO06

A STUDY ON PROCESS PERFORMANCE AND IMPROVEMENT AT ALPHA DRIVES-COIMBATORE

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Abstract

In today's era of extreme global competition, every manufacturing industries aredetermined to improve and optimise their productivity in order to sustain. The OEE of themachines plays a vital role in determining the key performance of the company. The Primaryobjective of this paper is to calculate the OEE of CNC, HMC, Shaving, Shaping, Slottingmachine and identify the machine with lowest OEE and identify its root cause using Pareto analysis. The secondary objective is to Compare the Performance of the machine operators and to analyse which operator has the highest performance and allot him to that particular machine. The Tertiary objective is to measure the total employee involvement since TEI and OEE is slightly interlinked. The machine history for two months was analysed for calculating the OEE and the TEI was measured by circulating the questionnaire directly to the employees. The result shows that the machine HMC has the lowest OEE and the reason behind the low OEE is due to the Lower availability which is due to the high time involved in setting and inspection. Keywords: OEE, TEI, Availability, Performance, Pareto analysis

MBAO07

A STUDY ON COLD CHAIN DESIGN FOR PERISHABLE ITEMS WITH SPECIAL REFERENCE TO DAIRY PRODUCTS

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Abstract

Rapid urbanization in India has fueled the demand for supplying perishable items in a fresh condition to the urban customers. The perishable foods are produced in hinterland and requires a cold chain network across the supply chain to prevent it from degrading. A supply chain of perishable items is referred to as a "cold chain". The recent study of NCCD has reported that integration of cold-chain does not exist due to a large gap exist in perishable products supply chain. The purpose of this paper is to highlight the challenges in Indian dairy cold chain and stress the need for addressing these challenges. In this study a framework for performance measurement of dairy cold chain is proposed to design an effectiveness and efficiency in dairy cold chain. A detailed review of literature has been carried out on cold chain for perishable and dairy products and opinion from the experts in the field of dairy industry were obtained for this study. Findings from the study provide direction to the policy makers to build efficient dairy cold chain which in turn benefit the milk producers and dairy companies.

MBAO08

A CONCEPTUAL FRAMEWORK ON FACTORS INFLUENCING THE OPERATIONAL EXCELLENCE IN HEALTHCARE DELIVERY

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Abstract

Healthcare is one of the service sectors which mainly include the hospitals, medical device, equipment and supplies manufacturers, pharmacies and health insurance companies. Of all the stakeholders, hospitals play a major role, having the first-hand connection with the patients as they are the providers of service and serve as a connection point for the other players in the sector. Operational excellence in healthcare can be defined as how the frontline staff works on continuous improvement in delivering the required service to the patients. The required service to the patients was measured with the reduced mortality rate, reduced waiting time, improved quality of service and many more variables. Operational excellence is a long-term continuous process which can be implemented by a set of behaviors, tools, and techniques. This paper focuses on identifying the various tools, techniques that are extensively used in hospitals for achieving the operational excellence and variables for the measurement of the results through a detailed review of the literature. Based on the reviews made, a conceptual framework was developed considering the factors influencing operational excellence in health care delivery.

Keywords: *Healthcare, Operational Excellence, Conceptual framework*

MCA001

A NOVEL APPROACH TO IDENTIFY BUILDING OBJECTS FROM SATELLITE IMAGES

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Abstract

Paper presents an innovative Building Object Detection method from the satellite image, which is based on Normalized Difference Vegetation Index (NDVI). Remote Sensing and Geographical Information System methods are used frequently in the field of planning and determination of land changes. Recently, Google earth images are used in most of the applications like urban and travel planning etc. The NDVI method is the key aspect to detect the building object automatically. The idea of the proposed method is to detect and identify the building object and periodic changes in the area were detected automatically.

Keywords: *Normalized Difference Vegetation Index, Google earth images, and Building objects*

MCA002

COST AND EFFORT ESTIMATION IN THE EARLY STAGE ASSESSMENT OF OBJECT ORIENTED SOFTWARE

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Abstract

The most demanding activities in software development organizations are software quality and cost estimation Software companies are alert on minimizing software error, producing good quality software products within the estimated budget. In the recent years, a significant research takes place in developing different techniques on software effort and cost estimation. Predicting an estimate before starting any software project is vital for the project managers and the key stakeholders. Major project target such as project schedules, budgeting, resource allocation, and project delivery dates are set on the effort and cost estimates. Thus, the reliability of the estimation is the desirable factor to find the success or failure rate of the project. In this article, author's idea is to work with early stage improvement while taking the decision in the design phase. This will retain the relations between the developer and the customer. Basically, size and cost is a deliberated element of the software project. Based on the size and other functionalities, the software managers estimate the total effort required to develop the project. From the effort and work schedule, the total cost can be estimated In this paper, the proposed model implements the technique using java tool

Keywords: *Cost Estimation, Reliability, Software quality*

MCA003

PERFORMANCE EVALUATION OF STUDENTS IN ADAPTIVE E-ASSESSMENT USING STRUCTURAL EQUATION MODELING

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Abstract

In today's competitive world, students have to learn many skills and assessments are designed to judge their abilities in a more scientific way. Adaptive E-Assessment is a popular mode of evaluating the performance of the learners. It is a reliable approach and is commonly used by educational institutions around the world. An adaptive strategy using multiple choice questions for conducting E-assessment has been formulated for assessing the knowledge level of students. Various statistical measures were used to compare the performance of the students. This study uses structural equation modelling (SEM) to identify the relationship between the various factors contributing to the test score and to assess the reliability of the relationships between these factors.

Keywords: *Adaptive E-Assessment, Multiple Choice Questions(MCQ), Degree of Toughness (DT), Structural Equation Modeling (SEM)*

MCA004

A FRAMEWORK TO ENHANCE PERFORMANCE OF E-SHOPPING

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Abstract

E-shopping is a trend in present scenario. Today the shopping in internet is become a culture and habit of people. Lot of E-commerce merchants are available in market. But the online shopping system suffers a lot with various issues like performance overhead, slow response, late and error prone deliveries. Hence it is essential to enhance the performance on the online shopping system. In this paper we propose a model "Shop IT" to address the above issues. It uses greedy based "Route Mapper Algorithm" to find the shortest route between the cities and constraint based "Optimum Grouping" algorithm to group the items in the appropriate cluster. The proposed algorithm solves the issue performance issues.

Keywords:*Online shopping, Clustering, Shortest path, Optimum grouping*

MCA005

ENHANCED ASSESSMENT SYSTEM TO IMPROVE THE EFFICIENCY OF CURRENT GENERATION STUDENTS

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Abstract

Assessment leads to learning. The present generation students properly guided in their learning. The correct assessment improves the learning of the students. In the paper we present a new assessment model "E-Brahma" to assess the performance of the students in current academic scenario and it also enhance the learning system also. In this paper we propose an assessment algorithm. The experimental results show the efficiency of the proposed system.

Keywords:*Online Assessment, E-Bramaha, Assessment, Grading.*

MCA006

SENTIMENT ANALYSIS OF STUDENT FEEDBACK TO IMPROVE EXPERIENCES IN BLENDED LEARNING ENVIRONMENTS

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Abstract

Educational data mining has aroused a great research interest among the educational institutions nowadays. Blended learning is used as a pedagogy in the field of teaching and learning. Blended learning merges online digital media with traditional classroom teaching where the physical presence of both teacher and student is necessary during regular hours of teaching. Teacher –student interaction is made possible using the internet during the non-contact hours. For rendering a valuable blended learning environment, it is essential to posses knowledge about users' opinion or feedback on this learning methodology. Therefore, opinion-mining techniques have been used in this paper for helping the academicians to improve and promote such learning environments. Students positive or negative feelings towards the subject teaching can be analyzed using these techniques. This paper discusses how sentiment analysis can be performed on the feedback collected in a learning management system in order to improve teaching learning process. This work presents the experimental results that were obtained after comparison of feature selection methods namely Information Gain, Chi-square Mutual Information and Symmetrical Uncertainty.

Keywords: *Feature Selection, Blended learning, Text Classification, Sentiment Analysis, Opinion Mining.*

MCA007

A NOVEL METHOD FOR SEGMENTATION OF PECTORAL MUSCLE IN MAMMOGRAM

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Abstract

Mammography is one of the best methods for early detection of breast abnormalities. The mammogram contains pectoral muscle and breast tissue. When analysed by computing techniques, the pectoral muscle should be removed from the breast tissue. It also signifies a high density area in most Medio Lateral Oblique (MLO) visions of mammograms; its inclusion can affect the results of intensity based image processing methods in the detection of breast cancer. In this manuscript, a new algorithm called morphological polyline smoothing is developed to automatically extract the pectoral muscle. The proposed method is applied to different categories of mammograms which are available in Mammographic Image Analysis Society (MIAS) database. The region of pectoral muscle is segmented and the results by are proven effective when compared to existing methods.

Keywords: *Pectoral Muscle, Mammogram, Automatic Segmentation, Poly line, Morphology, Iterative Threshold.*

MCA008

A COMPUTATIONAL MODEL FOR DEDUCTION OF PRICKLE NOISE FROM SATELLITE GALAXY IMAGES

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Abstract

Images are designed to display significant information and it plays a vital role in research and technology. The main disadvantage in digital image is amount of noise and degradation during their exploration. This paper presents a computational model for deducting of prickle noise from satellite galaxy images. Here, the existing image noise filtering techniques are presented and a new approach is introduced by assigning variance of pixels values to spoiled cells for deducting prickle noise. Image rebuilding approaches can preserve image details while suppressing prickle noise. The working standard of this technique is introduced and examined with simulation consequences using MATLAB. Experiment results are compared with the image quality metrics.

Keywords: *Prickle Noise; Image Noise Deduction, Image quality measures.*

MCA009

CLASSIFICATION OF AUTISM SPECTRUM DISORDER DATA USING MACHINE LEARNING TECHNIQUES

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Abstract

Autism is a neuro-developmental disability that affects human communication and behaviour. It is a condition that is associated with the complex disorder of the brain which can lead to significant changes in social interaction and behaviour of a human being.Machine learning techniques are being applied to autism data sets to discover useful hidden patterns and to construct predictive models for detecting its risk.This paper focuses on finding the best machine learning classifier on the UCI autism disorder data set for identifying the main factors associated with autism. The results obtained using Multilayer Perception, Naive Bayes Classifier and Bayesian Networkwere compared with J48 Decision tree algorithm. The superiority of MultilayerPerceptron over the well known classification algorithms in predicting the autism risk is established in this paper**.**

Keywords: *Machine Learning, Classification, Accuracy, Autism*

MCA010

DESIGN OF QUANTUM-SAFE CRYPTOGRAPHY FRAMEWORK AND QUANTUM KEY DISTRIBUTION FOR THE CYBER-PHYSICAL SYSTEM (CPS) ERA

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Abstract

Aquantum-centric security framework has to be devised for guaranteeing secure device-to-device (D2D) interactions and device-to-cloud (D2C) integration. The security of digital disruption and transformation in the digital era can be succulently bolstered through the quantum-safe cryptography framework solution. Quantum key distribution (QKD) protocol that intrinsically guarantees secure key exchange between quantum computers that uses quantum channel and communication. In this paper, the existing post-quantum, quantum-safe cryptography algorithms and QKD approaches are deeply studied and analyzed with the aim of bringing forth an integrated and insightful quantum cryptography solution framework for ensuring unbreakable and impenetrable CPS environments. The proposed cryptography algorithm is to serve immensely in securing the interactions amongst heterogeneous and multiple digitized elements, the connected devices, the software applications running on different and distributed cloud environments (public, private, hybrid and fog/edge). The framework also facilitates the initiation of quantum cloud that is hosting and providing the proposed quantum cryptography solution as a service.

Keywords:*Quantum safe cryptography, Quantum Key Distribution, Cyber-Physical Systems, Protocols.*

MCA011

REQUIREMENTS OF ERP VENDORS USING HYBRID ANALYTIC HIERARCHY PROCESS WITH ARTIFICIAL NEURAL NETWORK (HAHP-ANN) METHOD

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Abstract

The Enterprise Resource Planning system (ERP) has been pointed out as a new information systems paradigm. However, achieving a proper level of ERP success relies on a variety of factors that are related to an organization or project environment.Those ERP projects should be satisfied by the customers and vendors in terms of ease of accessibility, flexibility, efficiency and reliability. In our existing work, AHP-RCF method uses requirements in the rank based priority level. However, it not be discussed about the decision criteria of the customers. In our paper presents a hybrid approach between the Analytic Hierarchical Process (HAHP) and Artificial Neural Network (ANN) has been developed to evaluate and select the best degree of customization that is the requirements that can perform customization in the well efficient manner. The proposed method HAHP-ANN is used to determine the weight of customization is measured and various structures of multi-layer neural networks have been analysed for the optimization. Also the learning of software requirement gathering is done by using hybrid SVM classification approach based on which dynamic updation about the software requirements can be provided to the user customization.The overall evaluation of the research method is conducted in the java simulation environment from which it is proved that the proposed research technique leads to provide the optimal outcome than the existing research methodologies.

Keywords: *Enterprise Resource Planning system (ERP), Hybrid Analytic Hierarchy Process-Artificial Neural Network (HAHP-ANN), hybrid SVM.*

MCA012

AUTOMATIC WATER MONITORING SYSTEM FOR TOMATO PLANT BASED ON ARDUINO

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Abstract

The Ultimate goal behind Agriculture is producing a good yield from the available resources. The Major issues that is currently been undertaken is water for the crops. Each and Every crop needed different level of care and maintenance and whereas the amount of Nutrients needed also differs in different preposition. Even though all these contents are present in large quantities, how they are supplied to the crops becomes a question mark. A deployed Wireless sensor node transmits the real time data from the field and it is monitored by a system which does analysis over Light, Temperature, Humidity and Soil Moisture based on threshold values and finally brings sufficient water if the necessary conditions are not satisfied. The solution preferred is to maintain the stable growth of the crops that directly increases the yield.

Keywords:*Wireless Sensor Networks, Precision Agriculture, Water Monitoring, Arduino Node, Automated Agriculture*

MCA013

A SURVEY ON DATA MINING, APPLICATIONS AND ITS TOOLS

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Abstract

Nowadays rapid growth of data will be produce through the internet, data mining used to manage these large database. Data mining is the extract the useful information from the large data sets and change it into a structured or unstructured data for future use. In the knowledge management, data mining is an important and powerful technology. For collecting the customer behavior, recently many of the organizations working with data mining. Data mining is the inter-disciplinary fields such as Bio-medical, Bio-Statistics, Medicine, Banking Sector, Robotics, Business, Prediction of Stock Market,etc., In this paper, focuses on brief overview of data mining concepts, stages, tasks, techniques, tools and applications.Based on the survey various literature were analyzed and summaries the concept behind the interdisciplinary fields.

Keywords: *Data mining; KDD; DM Tools; Big Data; Gene; Fuzzy; Association Rule; Classification.*

MCA014

COLLISION WARNING SYSTEM USING RFID IN AUTOMOTIVES

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Abstract

The proposed work is about vehicle collision avoidance system using an ultrasonic sensor for a car. We use the application of electronic systems embedded in automobile which is expected to minimize the vehicle accident disaster. The RFID (Radio Frequency Identification) techniques concentrates on developing a model of rear end and other major vehicle collision avoidance system that will detect the distance between two vehicles moving in the same lane, in the same direction and alert the driver whenever he or she is in danger range using a microcontroller. The distance is measured by an ultrasonic sensor used to sense the obstacle ahead.

Keywords:*Collision Warning, Sensor, Radio Frequency, Microcontroller*

MCA015

AUTOMATED HEALTH-CARE USING GEO-FENCING AND CLOUD COMPUTING

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Abstract

In the recent years, with the advancement of technologies there are a variety of pros and cons leading to the increased use of hospitals and pharmaceuticals. The range of population and use of vehicles is enriching day by day. The possibility of death is near when there is an emergency due to high range of traffics. The existing system of ambulance service uses a methodology in which a call is given to the concerned ambulance driver and he takes the patient to the nearby hospital depending upon the emergency status. In this case there is a possibility of not having the medical record of that patient in hand. So it is tough for the doctor who is attending the patient to handle the situation. It is a time consuming and risky task. The proposed system saves the medical records in the cloud. In this case the medical record is available over to all the hospitals and hence it is easy for the doctor to give treatment. The organizing of medical records in the digital form is known as Electronic Health Record (EHR). The EHR is a support tool for both the patients and the health care professionals. This has some barriers that prevents its successful integration within the health care practice. There are a vast amount of healthcare data being generated by hospitals, clinics ,etc. This data when stored locally takes a large amount of space and can be used only by local persons. Hence, the data is to be stored in cloud in-order to be accessible remotely. The health care record is stored only in an encrypted format. In order to assure fast and flexible service geo-fencing is being used. Using geo-fencing it is possible to make the necessary requirements at the appropriate time when the ambulance reaches the geo-fenced area. Once when the data of a particular patient is used, a trigger is generated to the patient's mail number or mail id attached to the EHR. This system would support timely and efficient service to the patients in need.

Keywords: *Health-Care, Geo-Fencing, Cloud Computing, Electronic Health Record.*

MCA016

SMART VEHICLE TRACKING SYSTEM

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Abstract

Smart Vehicle Tracking System is used for tracking vehicles using the location of the vehicle recognized using Global Positioning System and Global System Mobile communication. The main aim of this system is to track the school/college buses continuously and to update the current position of the vehicle. This system also provides a platform for interaction between the parents, vehicle drivers and the system administrator.
Keywords: *GPS, WiFi module, vehicle tacking.*

MCA017

COLLISION WARNING SYSTEM USING RFID IN AUTOMOTIVES

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Abstract

The proposed work is about vehicle collision avoidance system using an ultrasonic sensor for a car. We use the application of electronic systems embedded in automobile which is expected to minimize the vehicle accident disaster. The RFID (Radio Frequency Identification) techniques concentrates on developing a model of rear end and other major vehicle collision avoidance system that will detect the distance between two vehicles moving in the same lane, in the same direction and alert the driver whenever he or she is in danger range using a microcontroller. The distance is measured by an ultrasonic sensor used to sense the obstacle ahead.

Keywords: *Collision, RFID, ultrasonic sensor*

MCA018

ARTIFICIAL NEURAL NETWORK BASED FAULT IDENTIFICATION BY EXTREME PRESSURE IN OIL PIPELINES

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Abstract

This paper presents an artificial neural network (ANN) based approach to identify faults for pressure sag state estimation. Usually ANN cannot be used to abstract relationship between monitored data and arbitrarily named fault indices which are not related a tall logically in numerical level. This paper presents a novel approach to overcome this problem. In this approach, not only the networks are trained to adapt to the given training data, the training data (the expected outputs of fault indices) is also updated to adapt to the neural network. During the training procedure, both the neural networks and training data are updated interactively. The approach is the efficiency of applying Gaussian Radial Basis kernel function to pressure measurement to increase the performance and accuracy. Hence this approach is implemented to identify the faults like leakage or crack or bursts due to extreme pressure in an oil pipeline transport system.

Keywords:*Oil Pipelines, Pressure, Neural network.*

MCA019

CONSTRUCTING MODEL FOR FORECASTING THE PRODUCTION USING THE CLASSIFICATION TECHNIQUE IN DATA MINING FOR THE DISTRICT OF TAMIL NADU

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Abstract

Data mining plays an important role in the production of the crop. It is a major field for forecasting and analyzing the crop. The vital role of the cultivator is to know about the production of the crop. In the years before, forecasting was carried out by taking into account the cultivator's previous experience on the selected area. The forecasting was the important criteria which should be solved by considering the data on hand. Data mining method are the enhanced selection for this use. Various Data Mining methods have been used for calculating the upcoming year's production. This investigation helps to recommend a model for forecasting the yield from the earlier data. For accomplishing and forecasting the yield association rule mining in data mining has been used. This helps to focus on implementing a system which may be used for forecasting the yield in the upcoming years. This research aims at presenting a detailed study by forecasting the yield using association rules in data mining technique for the chosen area i.e. Tamil Nadu district in India. The results demonstrate that the proposed work efficiently forecast the yield production.

Keywords:*Association rule mining, Data Mining, Agriculture, Forecasting production*

MCA020

AUTOMATED PAY AND USE BROWSING AND PRINTING MACHINE

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Abstract

The existing system function as a multiple unit like computer setup and printing unit is fixed at different location and an intermediate person will be there to do the printing process. The existing system faces some difficulties like structure is not compact, all the units are installed at a different location, Customer needs 24*7 service,but the service is not available in all the times. The service timing is limited up to the availability of the labor. The Automated pay and use browsing, and printing machine is a type of vending machine which performs 24*7 browsing and printing service. The system can be implemented in the public places, educational institutions etc. The setup works on the time-based control system based on the amount paid as the input for browsing and printing separately. The main controller is the Raspberry Pi which controls and monitors the complete browsing and printing process. The separate coin collector device is interfaced with it to collect the amount for browsing and printing service. A continuous monitoring is done through IoT which helps to monitor the machine 24*7 which provides data like number of printout taken, browsing time. This makes the performance monitoring process easy.

Keywords: *Automation, Performance Monitoring*

MCA021

NEURAL NETWORKS IN AGRICULTURE: A SURVEY

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Abstract

Neural Networks have become a very important tool in many areas including agriculture. In this article we survey the applications of neural networks in the field of agriculture including its developments, specifically in classification, decision making, pattern recognition, crop yield prediction, plant identification, weed image classification, remote sensing, plant disease identification, precision farming and spatial data analysis for agricultural enhancement. Among these we also focus on neural networks computing techniques in the field of agriculture especially in the context of soil and water. The survey is not intended to be exhaustive, It was used to convey information about the applications, techniques, future enhancements and challenges in applying neural network techniques in the field of agriculture.

Keywords:*Artificial neural networks, Soil Classification, Crop management, Agriculture*

MCA022

STUDY ON THE IMPACT OF CHILDHOOD COPING STRATEGIES IN ACADEMICS AND ADOLESCENCE LIVES OF STUDENTS USING DATA MINING

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Abstract

The role of a counsellor in educational institutions revolves mostly around academic and behavioural issues. The aim of this study is to identify common sources of stress among adolescence students and to determine the impact of coping strategies practised by the students in academics and life in general. The association between adolescent life, geographical location, stress sources, and coping strategies is explored in this work. Diverse factors contribute to stress, agitation and academic performance among students. The major factors that were considered for this study are regional and familial backgrounds of the students, their gender, residential status, communication skills, the five childhood coping strategies and their influence in the campus life. Counselling sessions were conducted for the students and the empirical data is classified using data mining techniques to analyze the factors that contribute to the behavioural aspects of the students.

Keywords: *Academic, Behavioural, Adolescent, Coping strategies, Counselling, Data Mining*

MCA023

A SURVEY OF FEATURE SELECTION METHODS FOR INTRUSION DETECTION IN COMPUTER NETWORKS

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Abstract

Radical raise in the usage of the Internet based applications have forced the research community to think of provisioning smart and safe network infrastructure. There are a number of intelligent network intrusion detection employing feature selection exists in practice. In this paper a survey on feature selection methods pertaining to network intrusion detection employing software agents, neural networks, machine learning and swarm intelligence is done. Network intrusion detection systems which have employed feature selection have proved to be superior in detection accuracy. This study is aimed to provide an clear and updated state of contributions by the research community in the area of feature selection methods exclusively of network intrusion detection.

Keywords: *Survey, neural networks,Fuzzysystems,Swarmintelligence, Feature selection, Machine Learning*

MECL001

DESIGN AND FABRICATION OF FNR-PLANETARY GEAR BOX

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Abstract

Epicyclic gear trains are employed in the design and fabrication of FNR PLANETARY GEAR BOX (FORWARD, REVERSE, and NEUTRAL). FNR GEAR BOXES are used in cars, forklifts and trucks with automatic transmission to operate the vehicle in three required modes thereby transmitting power from the engine to wheels. The planet gears in gear train act as idler gears that bring about the required reversal torque with a reduction gear ratio. Planetary gear boxes are advantageous as the load is divides by three gears at a time and three teeth each in the sun and ring gear. Hence higher torque can be transmitted in a small area with required gear ratio.

Keywords: *Epicyclic Gear, FNR, Automatic Transmission, Planetary Gear*

MECL002

APPLICATION OF TOTAL PRODUCTIVE MAINTENANCE TO ENHANCE OVERALL EQUIPMENT EFFECTIVENESS IN YARN MANUFACTURING

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Abstract

In an emergent and highly populated country like India, the Cotton Textile Industry is exceptionally important, to meet the demand for clothes and exports to other countries for the improvement of GDP. The Cotton Textile Industry accounts nearly 30% of the total value of exports and employs more than 55 million labors. In order to withstand the global competition, it is necessary to improve the productivity. Productivity can be ensured by availability of machines without any break downs. In the case, higher down time and break down due to lack of maintenance policies in the Carding process is observed in the Textile Industry where the work is carried out. Total Productive Maintenance is a tool which has been used here to improve the maintenance activities and to reduce the downtime. The main goal of the Total Productive Maintenance (TPM) is to improve the Overall Equipment Effectiveness (OEE). Prior to the implementation of TPM the company's present status has been checked. By using the Root cause analysis (cause and effect diagram) various major causes for low OEE has been identified, analyzed and solutions to overcome those drawbacks have been discussed. Solutions are implemented and OEE has been calculated, improvements are recorded and discussed.

Keywords:*Diffuser Housing, Performance analysis, Productivity, lead time*

MECL003

DESIGN OF WORKPLACE IN ASSEMBLY UNIT USING ERGONOMIC PRINCIPLES

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Abstract

Now-a-days most of the modern companies focuses on achieving high productivity through their normal routine work. Necessity to provide large quantity of products within a short period of time makes the workers to redeem their more effort. This situation adapts the workers to improperly designed workstation and makes the workers to suffer from high level of fatigue and musculoskeletal disorders [MSD's]. Ergonomic principles play a vital role in workers' productivity. So, it is necessary to take into account of ergonomic principles at the time of designing industrial workstation. The objective of this study is to improve workers efficiency with the reduction of cycle time thereby achieving high productivity. The study was conducted on assembly and collection workstation of fasteners, involved in actuators. Ergonomic study of these workstations was done by measuring the reach zone between the worker and working area, workbench height and time study during collection of fasteners. Findings from the study reveal that fixed existing workstation at the company was not designed by considering ergonomic principles. Moreover, collection of fasteners is about 75 seconds and it is reduced to 50 seconds by modifying the workstation.

Keywords: *Ergonomics, Fatigue, Workstation design, Time, Productivity*

MECL004

CFD ANALYSIS FOR OPTIMAL DESIGNING OF RADIATOR AXIAL FAN

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Abstract

The scope of the project is to improve the design of the given axial fan with shroud by doing CFD analysis also to derive the performance curve of the fan and to extract the fan efficiency curve.The CFD model was developed to predict the air flow through the fan with shroud system. Simulations were performed by CFX solver for the following objectives. The model and CFD analysis was built using the following parameters like, Speed of the fan 3100 RPM, Diameter of the fan 365 mm, input power of the motor 325 W and Torque 0.75 N-m. from the analysis it is observed that the high pressure regions are occurred at the areas where split of volute started and the tongue areas.Performance curve of radiator fan is calculated and plotted for different pressure drop like 50 Pa,140 Pa,210 Pa ,270 Pa,310 Pa and therespective Volume flow rate also predicted.

Keywords:*CFD, Radiator Fan, Pressure Head*

MECL005

DESIGN AND ANALYSIS OF MUFFLER TO REDUCE THE BACK PRESSURE

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Abstract

This study investigated engine exhaust backpressure that affects the performance and emissions of an IC engine under different speeds and loading conditions. The function of an exhaust muffler is responsible for noise and emission reduction of the IC engine. Backpressure is essential to reduce to increasing the engine fuel utilization. During the exhaust stroke, the average pressure in the exhaust pipe is known as mean exhaust pressure and the atmospheric pressure is also known as ambient pressure. Atmospheric pressure is also known by the word barometric pressure. The difference between exhaust pressure and ambient pressure denoted by word backpressure. The backpressure continuously varies depending upon engine speed and load conditions. Due to twists and turns of the exhaust gas has to reach the atmosphere, there is a substantial quantity of backpressure which limits the free flow of the exhaust gases. It is an essential thing to decrease the backpressure so it will cause the amplify in engine fuel consumption. The main design concern is to make sure that the backpressure to be minimum. The exhaust mufflers were designed using Solid Works 2018. Arithmetical analysis for backpressure tested by Computational fluid dynamics (CFD) using FLUENT. The analyses were carried out for existing and optimized mufflers to find better muffler design for lesser back pressure. Therefore, backpressure up to a positive level is not harmful to an IC engine.

Keywords: *Back pressure, Computational fluid dynamics (CFD), Muffler, Diesel engine, Boundary conditions*

MECL006

DESIGN AND FABRICATION OF AUTOMATED INBUILT HYDRAULIC JACK FOR LIGHT MOTOR VEHICLE

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Abstract

In the feat of changing the wheel of a light motor vehicle, lifting the vehicle is an unavoidable and a complicated practice. Manual lifting using jack systems requires more human effort and comparatively time consuming also. The proposed model is an alternative solution which reduces both the human effort and vehicle lifting time. To lift the vehicle, the user need to exert a gentle push over the lever, that actuates the desired hydraulic jack to the preferred height. In various proposals carried earlier regarding lifting the vehicle more number of jack systems, various power source terminals and requires an additional actuating means, which is redesigned with optimized conditions. The proposed system increases the comfort of the light motor vehicle users which brings them more closer to the technological up gradation. The proposed project is also mainly concentrated towards the ease of differently abled and aged persons.

Keywords:*Hydraulic jack, Light motor vehicle, Redesign, Lifting force*

MECL007

DESIGN AND IMPLEMENTATION OF LEAN MANUFACTURING SYSTEM IN DIFFUSER HOUSING

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Abstract

Every organisation aims to produce high quality goods and services to satisfy customer needs. In a production process, man machines, material, plant, services and methods are the input feeds, and the outputs are goods and services. At present almost, all organizations are reducing prices to gain more profit by reducing quality, but this practice will not hold for a long run, so in order to study on productivity improvements the output will increase marginally with no increase in the input. The aim of this analysis is to systematically find out the ability of an employee or any other resources in performing this task. The actual performance can be compared to pre-determined goals and standards for getting the results. Hence the main aim of the work is to reduce lead-time and work in process inventory, to increase the production in the manufacturing of the riveted diffuser by implementing suitable Lean approaches.

Keywords: *Diffuser Housing, Performance analysis, Productivity, lead time*

MECL008

REVIEW ON DESIGN AND METHOD TO PREDICT FATIGUE LIFE OF AN ANTI-VIBRATION MOUNT

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Abstract

In Industry almost all the machinery are subjected to noise, shocks and vibrations when machines are working. These vibrations leads to more frequent repairs and replacements of machine parts also reduce their life span. Anti-vibration mount is used as a Vibration Control Solutions for machineries. This work is more focused on the importance of anti-vibration mount, which can be used for various mechanical system. This study includes the design of mounts for various functional requirements and fatigue life prediction methods. There are several approaches to predict the fatigue life of mount. Initially, different types of failures in anti-vibration mounts are discussed in detail. Analytical method, Finite Element Method and Experimental approach to predict the fatigue life are analyzed. The strain life approach is considered, incorporate with material properties of mount and another approaches were discussed that are harmonic response, crack nucleation and crack growth mechanics. It is conclude with, the strain life approach is convenient method to predict the fatigue life of anti-vibration mount, because it give highly non-linear effect to find the critical region of mount.

Keywords:*Anti-vibration mount, strain life approach, harmonic response, miner's linear method, FEA*

MECL009

ELECTRODEPOSITION OF TRANSITION METAL COMPOSITES ON MILD STEEL: STRUCTURAL AND WEAR BEHAVIOUR

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Abstract

Wear characteristics of the transition metal composite (TMC) coated mild steel are investigated. TMC coatings were performed using electrodeposition technique on mild steel. Different concentrations of transition metals are subjected to prepare the TMC's and are studied. The structural and the micro structural studies of the composites coatings were studied through X-ray diffraction (XRD) and scanning electron microscopy (SEM), respectively. The elemental compositions of coated composites were evaluated using Energy dispersive X-ray diffraction (EDS) studies. Both the structural and micro structural characterizations confirmed the formation of composite coatings. Further, it is evident from the EDS analyses TMC's are coated with the desired concentrations. In order to understand the wear resistance of coated mild steel, the specimen were subjected to load on pin-on-disc type wear tester. The effects of concentration of composite and thickness of the coating on wear resistance are discussed. The coating results in improving the wear resistance and hardness of the specimen.

Keywords: *Composite coating; Electrodeposition; Wear; XRD; EDX*

MECL010

ENHANCINGTHE EFFICIENCY OF SOLAR THERMAL COLLECTOR BY PHYSICAL VAPOUR DEPOSITION NANO COATING

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Abstract

Nowadays people have their interest in renewable energy which is eco-friendly. Solar energy if one of the most used renewable energy source. Solar thermal collectors capture the incident solar radiation and convert to usable thermal energy and it is mainly used for heating. The solar sensitive coatings are very important item on absorber's surface. Due to pollution, dust or sand and the rain droplets on solar collector, its efficiency becomes reduce. In order to increase the efficiency of the solar collector, coating on its surface is essential. On compare with galvanic or sprayed coating the Nanocoating with physical vapour deposition (PVD) method is to be use.

Keywords:*Solar energy, solar collector, Nanocoating, PVD method.*

MECL011

A STUDY ON CAUSES OF UNDEREMPLOYMENT OF ENGINEERING GRADUATES THROUGH QUALITY CONTROL (QC) TOOL - AFFINITY DIAGRAM (KJ METHOD)

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Abstract

More than unemployment, the issue faced by the youth in India is debated to be underemployment. The objective of the study is to identify the causes for underemployment as perceived by the Under Graduate (UG) Engineering and Technology (E&T) students. The methodology involves collecting data on the causes of underemployment from UG E&T students at the verge of graduation and grouping the thus collected data. The Quality Control (QC) Tool - Affinity Diagram has been used in this study to collect data as it is an approach that enables data collection by protecting the identity of the data giver. The first phase of using the tool involves collecting data as experienced and perceived by the data giver. The second phase involves grouping of the data collected in phase one of the methodology and assigning a relevant group title. It has been concluded that such data grouped under relevant heads when provided to aspirants of UG E&T programs will enable the aspirants to: 1. Better understand the causes for underemployment and 2. Guide them to take actions at the optimal time during their student hood to attain the needful attributes to be employable immediately after graduation.

Keywords: *Unemployment, Underemployment, QC Tools, Affinity Diagram*

MECL012

A COMPARITIVE EXPERIMENTAL STUDY ON THE WATER REPELLENCY PROPERTY OF BEESWAX TREATED AND BACTERIAL CELLULOSIC MATERIAL

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Abstract

In the recent years, worldwide and environmental issues have prompted the developers to re-direct their to bio-based resources even in the medical sector. In this context, bacterial cellulose based materials are the upcoming area of research due to its potential medical application in the wound healing field. On the contrary, there are several natural antiseptic materials available out of which the Beeswax, a well-known material which suits requirements for the development of a medical textile material for the purpose of wound healing. Beeswax is a natural animal wax which has various properties in addition to its biocompatible nature. The chemical composition of beeswax varies according to the geographic region. Beeswax is used an emulsion stabilizer and water repellent enhancer due to its insoluble nature to textile fabrics. It also contains Vitamin A, which is an essential for human cell development. Nata de Coco is a form of bacterial cellulose which is the most popular one in the production of nata. Nata is the fermentation product of the bacteria, Acetobacter Xylinium referred to as Nata de Coco and Nata de Pina, their flavors are controlled by the coconut water based and pineapple water based cultures. Nata de Coco marks a remarkable application in the wound healing process for the second degree burns. In this present study, the superficial water-repellency for the beeswax coated fabrics and the artificial developed bacterial cellulose material called Nata de Coco is being compared which will further take the development process to the next stage.

Keywords:*Beeswax, Nata, Nata de Coco, Water-repellency*

MECL013

MATHEMATICAL MODELING AND OPTIMIZATION OF CUTTING PARAMETERS OF EPOXY GRANITE USING TAGUCHI METHOD

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Abstract

The main objective of this research work is to improve the quality of machining using optimization techniques such as Taguchi. The effects of cutting parameters was studied on cutting and feed force in turning process. EN 9 medium carbon steel was used for turning in Epoxy granite in lathe. The surface roughness of the components, amplitude in X, Y and Z axis are essential to increase the quality of machining. The direct and interactive effect of process parameters on response within the range of investigation was studied with ease from the Taguchi analysis. Taguchi analysis is done for optimizing the process parameters such as speed, feed, and depth of cut. The experiments have been as per taguchi's L9 orthogonal array. "Smaller is best" S/N ratio characteristic is used to determine the means and Analysis of Variance (ANOVA) table is produced to regulate the numerical connotation of the parameters. Response graphs are plotted to determine the desired level for each parameter. Surface and Contour plots are generated by using Minitab 17 Software. The speed is greatest influencing factor and its percentage of contribution is 61.98%, 64.54%, 70.66% on Amplitude in X, Y, Z axis respectively. The feed is greatest influencing factor and its percentage of contribution is 64.24% on surface roughness. It can be noted that the decrement of feed and DOC decreases the Amplitude in X,Y and Z axis, the increment of speed decrease the Amplitude in X, Y and Z axis. High level of DOC decrease the surface roughness. The low level of speed, feed decreases the surface roughness.

Keywords: *EN 9, Epoxy granite, Taguchi, Regression, ANOVA, Plots*

MECL014

A REVIEW OF IMPLEMENTATION OF LEAN TOOLS ACROSS VERTICALS IN MANUFACTURING

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Abstract

With the rapidly growing demand for products in the market, manufacturing has become a crucial part owing to the value addition that it creates. Customer will opt to go for the manufacturers who provide better value for money which is the very basis of sustainability. Implementing Lean methodology would complement the purpose. Lean methodology basically tries to reduce the waste in the process to finally result in process involving mostly value addition to customer. In other words, Lean means 'producing more and more with less and less resources' using various Lean Tools. There are various Lean tools each meant for a specific objective such as identifying the Non-Value-added Activities, workflow improvement, reduction in the variation of the output, Lead Time reduction and much more. Every manufacturing industry will have a wide-variety of challenges. This paper attempts to map a high-level picture of the various lean tools used across multifarious domains while attempting to co-relate and compare the choice in a relevant fashion. The entire work is done through analyzing the literatures of the lean researchers and practitioners work. This paper will also help the relevant domain people to choose and to understand the reason for selecting the specific lean tools, while implementing Lean methodology.

Keywords:*Lean methodology, Lean tools, Manufacturing, Lean implementation, Lean in Manufacturing verticals*

MECL015

ANALYSIS AND FINDING TECHNICAL ENABLERS USING ISM FOR INDUSTRY 4.0 IN INDIAN AGRICULTURAL INDUSTRIES

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Abstract

At the present scenario, agriculture industries are working hard to produce farmer satisfied products at affordable cost. The globalization and heavy worldwide competition stress them to precise and sustain in the market. The existing system are to be modified for smart manufacturing to cop up international benchmarking. The modifications consist of modern machine tools, automation system, machine learning technologies and systematic approach. The existing system and path for every individual industry are unique. Here the skill needed is to fit suitable enablers to the factors. The enactment of Industry 4.0 appropriately to industry is a task, because different industries lie at different sectors. In this context a study is made to identify the important technological enablers for the enactment of Industry 4.0 in Indian agricultural industries. Various enablers essential for implementing Industry 4.0 have been identified from literature review. Interpretive structural modelling(ISM) is employed for finding the mutual relationship among enablers. Data collected to rank the enablers in the agricultural field. The technological enablers are further being classified as dependent and driving factors. Thus a hypothetical model is created based on literature review. A proper acknowledgement of interactions among enablers will help organization to rank the factors and manage these factors with more efficiency to produce advantages of implementing Industry 4.0. This paper is aimed at identifying the various enablers to implement Industry4.0 in Indian industries.

Keywords: *Industry4.0, Farmer satisfied product, Affordable cost, Technical enablers, ISM*

MECL016

AN INVESTIGATION ON WATER COOLED COMPRESSION IGNITION ENGINE BY VARYING FUEL INJECTION PRESSURE

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Abstract

Air pollution in the globe is increasing day by day due to industrial and automobile emissions. Scientists around the world are working on reducing the air pollution from the sources causing air pollution. One of the major contributor to the air pollution is emissions from transportation sector. The major pollutants from this sector are from diesel engines. Though there are many techniques available to reduce the diesel engine emissions, electronic fuel injection systems in diesel engines are found to be effective than mechanical injection. In the current study, a water cooled diesel engine was used with common rail direct injection system to study the emissions from diesel engine. Experiments were conducted by varying the injection pressure. It is found from the results that increasing the injection pressure from 300 bar to 600 bar reduces engine out emissions and improves brake thermal efficiency. The results obtained from the injection pressure variations are also presented with injection timing variations.

Keywords:*Diesel Engine, Emissions, Heat release rate, Injection pressure, Thermal efficiency*

MECL017

INVESTIGATION OF PERFORMANCE AND EMISSION OF IC ENGINE USING POROUS MEDIUM CYLINDER HEAD

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Abstract

At present IC engines are experiencing with incomplete combustion and uneven temperature distribution inside the engine cylinder due to improper mixing of air and fuel mixture. Due to this effect, NOx, CO and Unburned hydro carbons will be released into the atmosphere. Excessive soot formation also takes place in the IC engine. To perform the homogeneous combustion inside the engine cylinder the new Porous Medium concept has been proposed. Porous Medium engine concept is mainly for reducing the emissions and improving the performance characteristics of the IC engine. Gun Metal Porous Medium has been introduced at the top of the Kirloskar 5BHP diesel engine cylinder head. When compared to conventional engine, reduction of total fuel consumption quantity up to 13%, Specific fuel consumption quantity up to 12%, increment in Brake thermal efficiency up to 12% and Indicated thermal efficiency up to 6% are obtained during part load operations. When compared to conventional engine, Mechanical efficiency has been increased up to 8%, NOx level gets reduced up to 53% and CO2 level gets decreased up to 46% from no load to full load operations.

Keywords: *IC Engine; Gunmetal Porous Medium cylinder head; Performance Investigation; Emission Control*

MECL018

A STUDY USING FAILURE MODE AND EFFECT ANALYSIS ON TEA LEAVES PROCESSING - LEAF SHREDDER MACHINE

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Abstract

India is a large exporter of tea leaves and has industries involving in Tea Leaves processing. There are generally three stages in the processing of tea leaves and many machines are involved that cater to various process to convert the raw tea leaves to usable products. In the first stage there is a machine titled Leaf Shredder that is critical in the process as the entire process is a product based and a breakdown of this machine in particular affects the entire process from that point. This study focuses on the failure modes of the Leaf Shredder machine and its effect. The Total Quality Management (TQM) tool - Failure Mode and Effect Analysis (FMEA) is used in this study. The critical functional components of the Leaf Shredder are five in number. Through the study, data has been collected and the Risk Priority Number has been calculated. Based on the Risk Priority Number value it is seen that the Cutting Knife, Main Shaft and the Bearing are the components that are having a tendency to fail. The Reason of failure was analyzed. From the analysis it is seen that the main cause of failure is due to improper maintenance of the components and unbalancing of the cutting knife weight. A well thought of plan of action to maintain the Tea Leaf Shredder will bring down the failure rate and improve the reliability of the product layout.

Keywords:*Leaf Shredder Machine, Failure Mode and Effect Analysis, Product Layout, Risk Priority Number*

MECL019

AN APPLICATION OF BALANCED SCORECARD APPROACH IN MEASURING SUPPLY CHAIN PERFORMANCE

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Abstract

Supply chain management plays a major role in enhancing organizational productivity and profitability. An efficient supply chain can lead to reduced costs, increased market shares, improved sales and sustainable customer relationships. However, designing a supply chain alone is not sufficient in bettering the overall performance of an organization which can only be improved through periodical evaluation of supply chain performance. For evaluating supply chain performance, the balanced scorecard is an appropriate tool, apart from Supply Chain Operations Reference models (SCOR), Analytic Hierarchy Process (AHP), Data Envelopment Analysis (DEA) and Heuristic techniques based models. Modern firms face inabilities in measuring their actual performance against the targeted performance. Actual performance is either greater or lesser than the targeted performance which leads to uncertain and fragile supply chains. Accounting for this ambiguity and improving supply chain performance using balanced scorecard model is the focus of this research effort. Balanced scorecard provides an approach to inspect value creation from four perspectives such as financial, customer, internal business process, learning and growth. In this paper, the drag factors which affects the above four perspectives have been explored and removed, so that the performance of supply chain can be improved leading to better profitability.

Keywords: *Balanced scorecard, SCOR, AHP, DEA, Supply chain performance*

MECL020

AN EXPERIMENTAL STUDY ON FRICTION STIR WELDING USING M42 ON AISI 1018 STEEL PLATES

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Abstract

Friction stir welding(FSW) is a solid-state joining process. FSW was applied primarily to aluminium alloys, which could be welded due to the relatively low softening temperatures of these alloys. And it was difficult to weld ferrous alloys and other high melting temperature metals due to the lack of suitable tool materials. The objective of this work is to demonstrate feasibility of friction stir welding for joining ferrous material. FSW of mild steel has commercial and technical benefits. The welding experiments were performed using vertical milling machine and the welding tool was made of molybdenum based high speed tool. Welding samples were examined by destructive and non-destructive test. Defect-free welds were produced of 3 mm thick plate over a range of travel speeds from 500 to 1000 rpm. FSW is performed on AISI 1018 steel the hardness in the stir zone varies from 139 to 145 HV. This is reason for formation of fine equiaxed structure of ferrite and pearlite in the stir zone.

Keywords:*Friction Stir Welding(FSW), Molybdenum High speed steel Tool M42*

MECL021

DESIGN OF AGILE SUPPLY CHAIN MODEL USING FUZZY LOGIC APPROACH IN MANUFACTURING INDUSTRY

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Abstract

The organizations of the present times are under immense pressure to produce innovative and customized products and deliver them rapidly to the customers. The ability to adapt to the rapid and unexpected changes of the market determines the success of the organizations. In the present business environment, organizations have to work as a coherent network to achieve this goal. This competitive situation forces the manufacturing organizations to transform their conventional manufacturing pattern to a flexible one which marks the evolution of agile manufacturing paradigm. An agile supply chain is a system to serve the changing needs of the customers, the organization as well as the suppliers has to respond quickly and combine towards the requirements. In order to facilitate the changes, agility has to be infused right from the design of the product itself. The agile criteria are addressed as follows Outsourcing, Integrated logistics management, internal supply chain management, Supply chain partner selection, Organizational structure. This proposed model is encompassed with agile supply chain criteria whose performance levels need to be determined for assessing the overall Agile Supply Chain (ASC) performance of the organization. The computation was performed using fuzzy logic approach. After assessing the performance of agile criteria weaker criteria are identified and the management experts will provide the proposal for weaker criteria to improve the agile performance. The macro analysis is done with the result of the proposed model and research paper vinodh et al., Journal of Manufacturing Systems (2013) and the result of the macro analysis is computed.

Keywords: *Supply Chain(ASC), Fuzzy Logic Approach*

MECL022

NUMERICAL INVESTIGATION OF NATURAL CONVECTION HEAT TRANSFER ENHANCEMENT IN RECTANGULAR FINS WITH DIFFERENT PERFORATION

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Abstract

The heat Transfer enhancement needs buoyancy force. This is to be achieved by making perforations on fin surfaces.The present paper shows the heat transfer enhancement in terms of density, velocity and temperature effect with three different perforation geometry (Parallel square, Inclined square and circular). The state of the art CFD was used to carry out the study of density variation, velocity and temperature drop among different perforated fins. This type of perforated fin has an improvement in heat transfer rate over its dimensionally equivalent solid fin.

Keywords:*Heat Transfer, Natural Convection, Perorated rectangular fin.,CFD*

MECL023

NUMERICAL STUDY OF EFFECTS OF OBSTACLES ON HEAT TRANSFER AND FLUID FLOW IN BACKWARD FACING STEP FLOW

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Abstract

An extensive research has been done on heat transfer and pressure drop characteristics in micro-channel using liquid water. A baffle has been introduced downstream the sudden expansion zone to enhance the rate of heat transfer. The height and the location of the baffle were varied for the Reynolds number range 50≤ Re ≤ 200, which is a laminar flow. Two dimensional flow domain with non-staggered grid arrangement was taken and the two dimensional mass, momentum and energy equation was solved using finite volume method in ANSYS 16.2. This study reports that the presence of baffle in the micro-channel increased the rate of heat transfer. The skin friction coefficient has been calculated and the parameters influencing the heat transfer augmentation have been optimized.

Keywords: *Heat transfer, micro channels, laminar flow, skin friction coefficient*

MECL024

OPERATION ENHANCEMENT FOR BRAKE DRUM PROCESS USING VALUE STREAM MAPPING

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Abstract

Value stream mapping (VSM) is a visual representation tool among lean techniques, which often by the Toyota Production System. It is an analyzing method used to determine the stream of materials flow and summarizing them visually. Value stream involves both non-value and value-added activities needed to bring every action in the reformation of production flow from raw materials to the finished products to the customer. It is used to find the hidden wastes and their root causes in the production process. A current state map shows the exiting process followed in foundry. Then, a future state map is developed for the flow process through which the reduction of wastage can be achieved. In this work, for a casting foundry the current state maps are drawn from the results of detailed time study of the process starting from raw materials to the finished product. After rambling the whole process, wastage affecting the cycle time is identified and it is to be reduced by proper arrangement and removing of non-value activities. A future state map is drawn and further improved, and ideas are suggested for improvements are implemented. VSM is found to be a better method to minimize the cycle time for an increase in productivity and improved customer satisfaction.

Keywords:*Current State Map, Cycle Time, Future State Map, Productivity*

MECL025

OPTIMIZATION OF BLANKING DIE DESIGN PARAMETERS THROUGH MATHEMATICAL MODELING AND GENETIC ALGORITHM BASED EXPLORATION FOR AISI 304 SHEET MATERIAL

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Abstract

In sheet metal blanking operation, several die design parameters affect both quality of the blank and productivity. The most important input parameters includes sheet thickness and the punch and die clearance and the output parameters covers tool life and the burr height. The selection range should have optimal values which is achieved through the genetic algorithm technique. The genetic algorithm is an optimization tool to locate the better results as an optimal output. A mathematical model is developed using the equations derived from the multiple regression analysis. It is performed by converting the linear equations into the matrix form and then solving it using mathematical relations. Improved results are obtained through comparing the optimized output values with the genetic algorithm results.

Keywords: *Mathematical modeling, Genetic algorithm, Multiple Regression Analysis, Sheet metal blanking operation.*

MECL026

OPTIMIZATION OF MOULD BASE PRODUCTION USING RANKED POSITIONAL WEIGHTED METHOD AND SINGLE MINUTE EXCHANGE OF DIE SYSTEM

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Abstract

In the domain of intense global competition, the manufacturers are in need of producing different varieties of products. Successful manufacturing firms in the past have well produced the products based on the minimum amount of requirements in the market. This is so because of customer needs and economy rate is minimum in the past period of time. People like to use molded parts instead of using assembled component in the present days to survey in the market against competitors. So the manufacturer decides to produce a wide variety of mould bases for production and to satisfy the market needs. But the mould base manufacturing is not easier to produce the components to reach the market. It ought to be very much precised and devours more opportunity to produce the component by manufacturer to deliver that in an on-time to market. For this situation, the enterprise which produces distinctive mould bases needs to reduce the lead time is the major fundamental worry of the work. The primary target of this work is to decrease the setup time from 30 minutes to less than 20 minutes for each component. This can't be accomplished without huge investment and to be versatile for manufacturing different mould parts. This needs special planning to manufacture different moulds. And the result obtained with the help of using Ranked Positional Weighted (RPW) method procedure for an entire operation to calculate the critical path of production of components and also use the Single Minute Exchange Die (SMED) to optimize the setup time in an operation. Results of the research signifies the application of ranking an operation with suitable methodological approach to reduce the cycle time of the production of component to satisfy the market needs.

Keywords:*RPW Method, Single Minute Exchange Die (SMED), Cycle Time, Lead Time.*

MECL027

DETERMINATION OF NATURAL FREQUENCIES OF SPUR GEAR IN PORTAL AXLE GEARBOX

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Abstract

Portal axle is introduced to avoid damage of the vehicle bottom portion while it is running on off-road condition by providing additional ground clearance to the vehicle. Since the ground clearance is achieved through gear train arrangement, the operating frequency of the gear shouldn't match with its natural frequency. This work aims to predict the natural frequencies and modes shapes of the gear train with three types of gear arrangements. The effect of natural frequency also studied with three different gear materials such as steel, CI and Al alloy. Gear trains are modeled in Solidworks 2017 and analyzed in well-known FEM software ANSYS workbench 16.0. First six natural frequencies and corresponding mode shapes are also obtained. FEM results are compared with operating frequency of the gear.

Keywords: *ANSYS Workbench, FEM, Portal axle, Spur Gear*

MECL028

PRODUCTIVITY IMPROVEMENT USING LEAN CONCEPT IN AUTOMOTIVE WELDING FIXTURE MANUFACTURING INDUSTRY

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Abstract

In today's global marketplace, especially the Own Equipment's Manufacturer (OEM), manufacturing automotive components must be more competitive to compete with competitors, where production cost is an important concern. To increase the productivity and to decrease the production cost, lean thinking can be applied which in turn enables the company to survive in today's competitive world and to have competitive edge. In one of the Automotive Welding Fixture Manufacturing industry, which manufactures Body in White (BIW), some of the problems were identified which reduces the productivity and increases the production cost. Even though trial and error methods based on the experience were used to address the above-mentioned problems, a systematic lean thinking if applied will produce more effective results. In this aspect, some of the lean tools viz. 4M, bin system and KANBAN system were applied in this work to eliminate / reduce the implications of these problems. By implementing these lean concepts, the welding fixture manufacturing company saves around 33 hours approximately per week which inturn produces a profit of around Rs. 20,960/- per week.

Keywords:*Lean thinking, productivity improvement, welding fixtures, KANBAN, Bin system, 4M*

MECL029

REVIEW ON BIOMATERIALS

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Abstract

The review on biomaterials are done for the purpose of understanding the importance of materials in biomedical field. The paper deals with collection of biomaterial data for implementation in various parts of body. Authors concluded that selection of materials is important for biomedical application due to replacement purpose considering tissue engineering. Information of various materials are gathered for selection of material for various bone replacement. The paper concludes with the results obtained from analysis of various materials which have its unique applications. The design of bone is done CATIA and analysis of material for body parts are carried out using ANSYS.

Keywords: *Biomaterials, tissue engineering, bone replacement.*

MECL030

DESIGN OF SOLAR AUTO TRACKING WITH WATER PUMP SYSTEM

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Abstract

Energy plays an important role in the material, social and cultural life of mankind. The energy needs are increasing day by day. This is the result of population growth and increase in the standard of living which is directly proportional to energy consumption. In this study the renewable energy(solar) is trapped and utilised for operating the water pump system for pumping water from Well to agricultural land. Auto tracking of solar energy is done with the help of LDR sensor and rack and pinion mechanism to increase the efficiency of the solar trapping system. The solar panel is kept under the sun for radiation. The photon energy from the sun lights is incident on the top metallic grid causes the electrons in the P-layer and holes in the N-layer to diffuse towards the junction. In this process the electrons collected on the N-side and holes collected on the P-side charge these two sides oppositely. This develops an open circuit voltage across the two terminals. The energy conversion process continues as long as light is incident on the active top surface of the cell. The power developed by these cells are collected and stored in a battery. The power from the battery is sent to the DC motor. It runs the dc motor pump coupled to it. The suction head is connected to the well and discharge head is directed towards the field. The water from the well is pumped out and it is used for the domestic or agricultural purpose.

Keywords:*Solar energy, Energy consumption, Auto tracking, P-V cell, Water pumping*

MECL031

EXPERIMENTAL INVESTIGATION ON EFFECT OF LPG ON BIO DIESEL FUELLED ENGINE

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Abstract

Owing to depletion of fossil fuel and stringent emission norms researches were focused towards the usage of alternate fuel in combustion engines. However, because of lower calorific value of bio diesel, the engine thermal efficiency is still lower compared to diesel. In this study we investigated the effect of LPG addition on combustion and performance characteristics of the pungam bio diesel fuelled engine. Three different proportion of LPG were chosen and test was carried out on different engine loading conditions. The experimental data indicates that increase in mass flow rate will results in engine efficiency improvement and combustion characteristics.

Keywords: *Diesel Engine; Bio Diesel; LPG; Combustion Characteristics*

MECL032

DESIGN OF THERMAL STORAGE USING PHASE CHANGE MATERIAL (PCM) FOR AGRO PRODUCTS PRESERVATION

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Abstract

Storage and preservation of agro products are receiving significance to reduce the wastage of agricultural commodities and demand of low cost and less energy intensive sustainable methods. An efficient technique is proposed to preserve farm fresh vegetables through Phase Change Materials (PCM), with lesser electrical energy consumption. In this proposed work, atmospheric air is inducted in to chamber where it is cooled by sensible cooling by passing it through PCM. The PCM changes its phase by absorbing latent heat from the outdoor hot air.. The alternate melting and freezing cycles of typical PCM is exploited for cooling the air which is further circulated into cold storage cabinet. In order to achieve the desired cold storage cabinet temperature and humidity, the amount of air circulated and mass of PCM required is estimated through cooling load and heating load calculations. Based on these load estimates, an appropriate size of equipment's such as fan, storage cabinet, PCM chamber and heat pipes are designed. Further, performance of the cold storage may be improved by enhancing thermal conductivity of PCM and design improvement of cold storage by the various improvements.

Keywords:*PCM, Cold Storage, Latent Heat, Cooling Load, Load Estimation*

MECL033

TEMPERATURE VARIATION STUDY ON INDUSTRIAL BUS DUCT SYSTEM BY MATLAB AND FEA

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Abstract

This paper displays a test, numerical and FEA thermal model of the heat transfer process in an industrial bus duct system. The examination incorporates a mechanical properties of various bus bar materials and bus bar configurations. At that point the calculation has been produced to anticipate the temperature ascend in the bus bars and furthermore to think about the sizes of bus bar materials like copper and aluminum and changes in air speeds for both the copper and aluminum bus bar materials utilizing MATLAB and FEA unfaltering state thermal investigation in ansys. The outcomes acquired from the MATLAB estimation and FEA investigation has been compared. It has been discovered that constrained convection – opposite wind current lessens the power misfortune because of thermal generation is likewise diminished in the bus bar conductors.

Keywords: *Bus bar, Heat transfer, Current carrying capacity, convection.*

MECL034

DESIGN AND ANALYSIS OF AUTOMOBILE DISC BRAKE COOLING SYSTEM IN FORCED CONVECTION MODE

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Abstract

One of the most important components in a road vehicle is its braking system. It is mainly used to decelerate vehicles. In vehicles friction brakes can be grouped into drum and disc brakes. Comparatively disc brakes having more advantages over drum brakes. A brake disc usually made of Gray cast iron or Ceramic composites is connected to the wheel or the axle. In this Brake Disc Rotor, high amount of heat is produced (up to 900°C) in a fraction of second due to high-performance driving and when going down a long steep hill. Gray cast irons maintain their mechanical properties up to 500°C approximately. Above this temperature, the mechanical properties drop quickly. Above 500°C during braking may cause brake fade, premature wear on the pad, brake fluid evaporation, wheel bearing failure. This causes a thermal shock that generates surface cracks and a large amount of plastic deformation. For the reduction of the heat, there are many experiments taken place like changing the materials, increasing the number of vanes. Here the objective is to provide the more amount of air to the disc rotor by providing the duct on a car bumper. To design air duct to force cool the disc rotor (which forces the opposing air to disc brake) and to provide the solution by analyzing the disc's temperature reduction rate from results using analysis tool.

Keywords:*Brake Rotor; Airflow cool; Forced convective cooling*

MECL035

ANALYSIS OF DYNAMIC PERFORMANCE OF E-BIKE TRACTION SYSTEM

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Abstract

Three phase induction motor plays a vital role in electrical traction and industries.Especially parameters of the three phase induction motor is accuratly need to be analysed.Then only those induction motors are to be utilised in the industry effectively.Therefore in this paper mathematıcal modellıng and sımulatıon of three phase ınductıon motor is presented.In order to model the real time three phase induction motor,three individual AC source used here is converted as Vqs and Vds voltages.Then these Vqs and Vds voltages are converted as Iqs and Ids along with various refernce speeds and mechanical load.Moreover this Iqs and Ids is used to formulate stator currents of the three phase induction motor.Stator currrents are represented as Ia , Ib , Ic for A-phase,B-phase and C-phase respectively.Then these three phase stator currents of the induction motor is verified for whether it is in acceptable limits. Eventually, electrical torque produced is verified with the applied torque which is in the form of mechanical load.Besides actual speed of the modelled three phase induction motor is verfied with the refernce speed in terms of speed tracking.At the end, accurate modelling of the three phase induction motor is achieved using Matlab simulink simulation.

Keywords: *Reference speed, Applied torque, Stator currents*

MECL036

DETERMINATION OF END EFFECTOR CONTACT FORCE AND STRESS ANALYSIS FOR SCARA ROBOT

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Abstract

In the field of robotics, the end effector contact force with the target influences the structure of the robot. In this project, the idea is to identify the contact forces at the end effector and to determine the stress incurred in the manipulator links and the various joints while drilling. The analysis is done by using the softwares such as SolidWorks and ANSYS thereby reducing the cost of prototyping and time. It is done by developing 3D CAD model of SCARA using SolidWorks and then analyzed using ANSYS. Two type of SCARA robots are designed based on number of links viz., 2 link SCARA and 3 link SCARA. The materials chosen for the SCARA robot design are Aluminium and Titanium alloys based on their densities 2700 kg/m3 and 4500 kg/m3 respectively. The analysis performed for varying the parameters such as drilling speed (rpm) and drilling tool diameter for both Aluminium and Titanium alloys. The ANSYS results inferred that for aluminium material the Von-Mises stress and total deformation are little high when compared with Titanium material. In the case of Titanium material the normal stress is little high when compared with Aluminium. So the results of the analysis concluded that the Titanium material is more preferable than Aluminium for making SCARA robots for drilling purpose.

Keywords*:SCARA robot, Aluminium, ANSYS, Drilling*

MECL037

MECHATRONICS SYSTEM DESIGN FOR AUTOMATED CHILLI SEGREGATION

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Abstract

Robotics and automation are leading humanity to a new era. Sustainability and growth are being met in the industrial sectors due to automation. The same automation can do miracles in agriculture to increase productivity. Machine vision is a primordial element in enabling the complete automation. This paper discusses about the design and development of an automated system that utilizes machine vision for chilli segregation. The image of the chilli is captured by a camera and the ripeness is found by analyzing it in a machine vision software following which it is sorted into being ripe and unripe. This process of automation in the agriculture will reduce manpower for segregation process during the harvest time. Implementing at a larger scale can be profitable. This method can also be tailored for sorting other vegetables like tomato, lemon, and other fruits and vegetables based on ripeness.

Keywords: *Robotics, Automation, Machine vision, agriculture*

MECL038

MODELLING AND SIMULATION OF REDUNDANT ARTICULATED ROBOT WITH MULTIPLE TOOL END EFFECTOR

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Abstract

The robots are electromechanical systems that need mechatronic approach before manufacturing them, in order to reduce the development cost. In this paper, a novel attempt of Modelling PRRP (Prismatic Revolute Revolute Prismatic) configuration redundant articulated robot (Selective Compliance Articulated Robot Arm) robot with a Multi spindle drilling tool (MSDT) using SolidWorks CAD software and the dynamic study with the aid of MATLAB/SimMechanics is presented. The redundant articulated robot with MSDT is used to drill multiple holes in the printed circuit boards (PCBs) and sheet metal. In this work, the 3D CAD model of the proposed robot is converted into SimMechanics block diagram by exporting it to the MATLAB/SimMechanics second generation technology environment. Then SimMechanics simulation is performed and by utilizing its motion sensing capability the dynamic parameters velocity and torque of the manipulator is observed for modified variable robot structure. The simulation results indicate the considerable change in the dynamic performance for varying design parameters.

Keywords*:Redundant articulated robot, multi spindle drilling tool, SolidWorks, SimMechanics, dynamic study, simulation, mechanics explorer.*

MECL039

REMOTE LABORATORY

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Abstract

This paper presents a web-based remote access real-time laboratory using IOT (Internet of Things) control. The suggested architecture helps to improve safety for user to work in hazardous environment or the handling of hazardous chemical substances at industry. This system also creates new opportunities for distance learning among students and researches, particularly within in engineering disciplines where hands-on experience is regarded as essential to acquire knowledge and reinforce professional skills. The remote laboratory presented here offers an economical solution for multi-users to access real instruments in real industry via internet. This remote laboratory system uses real instruments such as Robotic arm, DC pump, Water flow sensor and Cameras and the developer user interface was designed using python ad tkinter module which allows users to access the lab and information about the conducted experiment.

Keywords: *IOT, Hazardous, DC pump, Robotic arm*

MECL040

EXTRUSION DIE CAVITY AND EXTRUSION LOAD OPTIMIZATION USING GENETIC ALGORITHM

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Abstract

The process by which the cross section of the metal billet is reduced by pushing with high pressure through a die orifice is called Extrusion. Die with conical entrance angles are used in extrusion with good lubrication. Decreasing the die angle increases the homogeneity of deformation and lowers the pressure of extrusion, the disc surface friction above a point will be more.. Presently the die design is made by Tentation which is time consuming and not accurate. To overcome the above issues a new genetic Algorithm approach is adopted for the die profile optimization. In this present work GA is applied for optimization of cone angle of the extrusion die and coefficient of friction coefficient.

Keywords:*Extrusion pressure minimization, Genetic algorithm, Optimization*

MECL041

A SURVEY ON PERMANENT MAGNET BRUSHLESS DC MOTOR FOR ELECTRIC VEHICLES

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Abstract

The main concern of all the developing countries today is the reduction of pollutant gases and conservation of energy. The pollutant gases from vehicles contribute more towards pollution. This have made the countries to design and develop pollutant free Electric Vehicles (EVs). The EV consists of electric motors, batteries, energy management system in addition to vehicle body. For EV applications, Permanent Magnet Brushless DC (PMBLDC) motors are more suitable because of its high power density and reliability. Hence a comprehensive literature research on Permanent Magnet Brushless DC motor drives has been made. Most of the EVs are with Permanent Magnet Brushless DC motor with traditional driveline. The main objective of the work is to study the different design aspects of PMBLDC motor and the selection of BLDC motors with required power and torque based on the application. The design variables such as airgap flux density, slot electric loading, stacking factor, coil fill factor, end turn coil factor, magnet fraction, slot fraction, flux density in the stator back iron, etc., are taken into consideration for this process. This survey proposes a suitable PMBLDC motor suitable for electric vehicle based on the different parameters under various driving conditions.

Keywords: *Electric Vehicle, Permanent Magnet Brushless DC motor, Comparison*

MECL042

DESIGN ANALYSIS OF FIBER REINFORCED EPOXY BASED TWO-WHEELER MUFFLER USING CFD TOOL

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Abstract

Exhaust system in automobile is exposed to acidic environment due to condensation of exhausts. The corrosion is one of the main reason for premature failure of muffler in automobiles. At present ferrous materials are used in two wheeler muffler, which on contact with acidic environment lead to corrosion. In this work E-glass/Epoxy, S-glass/Epoxy and Boron/Epoxy composites are considered due to superior physical properties such as high strength to weight ratio, good corrosion resistance and high stiffness. 3D CAD model of two wheeler muffler is generated for 2 mm, 1 mm and 0.5 mm wall thickness using CATIA V5. Fluid Structure Interaction (FSI) analysis is done for the generated CAD model for the peak exhaust pressure using Ansys workbench and the material is finalized by comparing the deformation, maximum stress, availability and cost of the materials. The S-Glass/Epoxy of 1 mm thickness shows satisfactory result with respect to above mentioned conditions compared to E-Glass/Epoxy and Boron/Epoxy composites.

Keywords:*Muffler, Acids, Corrosion, Fibre Reinforced Epoxy composites and Coupled Field Analysis*

MECL043

DEVELOPMENT OF A TIMING CHAIN CAM DRIVE WITH A PRE-LOADED AUTOMATIC TENSIONER

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Abstract

Automotive engines generally use timing belts or timing chains to transmit crankshaft rotation to the camshaft and accessories. Due to extreme operating conditions, the chain drive is prone to wear and results in elongation of timing chain which affects the performance of the engine. So, A tensioner unit is used to maintain constant tension and has been effective at improving chain life as well. The steel spring material is enclosed in a tensioner arm and is pre-loaded, assembled on the driving side of the timing chain cam drive, which could account for compensation of chain elongation automatically upto certain limit eliminating a separate tensioner unit there by resulting in reduced size and cost of the equipment.

Keywords: *Timing Chain Cam Drive, R&D, Design & Analysis*

MECL044

EFFICIENCY IMPROVEMENT OF AN AUTOMOTIVE ALTERNATOR

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Abstract

In real time automotive electrical systems, the alternator is used in the charging system of the vehicle. The alternator generates AC voltage which is converted into the DC voltage from the rectifier. This DC voltage is used to charge the battery in the vehicle. In diesel engine vehicles, the vacuum pump is coupled with the alternator. The vacuum pump is used in the braking system of the vehicle. The vacuum pump provides vacuum in the suction line of the braking system. The rotor of the vacuum pump is made of mild steel which weighs high, hence it may act as a load to the alternator and reduce the efficiency of the alternator. In our proposed model, the efficiency and performance characteristics of the alternator can be improved by reducing the mass of the rotor in the vacuum pump which is coupled with the rotor of the alternator. Here the aluminium metal which weighs less than the mild steel can be used. By using this aluminium metal as a rotating part in the vacuum pump, the mass of the vacuum pump is reduced. Hence the rotor of the vacuum pump which is coupled with the shaft of the alternator is changed to aluminium metal instead of mild steel. And by this proposed model the output power of the alternator gets increased. The increase in output power results in increased efficiency of the alternator and also the efficiency of the charging system gets increased.

Keywords:*Automotive, Electrical systems, alternator, vacuum pump, Aluminium*

MECL045

LICENSE PLATE RECOGNITION SYSTEM USING MACHINE VISION

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Abstract

This paper discusses about License plate recognition using digital image processing methods where the image of the vehicle is taken and the number plate is then recognized by various layers of digital image processing. The number plate is then allowed to undergo OCR (optical character recognition), this extracts the data and then compares it with a database containing the information of the vehicle. This system allows the user to identify the type of vehicle and the identity of the person who is driving the vehicle. It will denote the user about the registration of the vehicle by comparing it with the database of the registered vehicle in the area. The device will consist of a camera which will take the real time footage of the vehicles and a snap from the video of the vehicle is used to recognize the number plate. The processor will process the images and will display the number of the vehicle and the owner of the vehicle in the display, this is achieved by comparing the number of the vehicle with the previously fed data from the database. This device will provide an efficient way for automating a parking system where there will be no need for a human to interfere with the checking of the vehicle and providing passes for the vehicle.

Keywords: *OCR, Digital image processing, vehicle, automating*

MECL046

EMISSION REDUCTION IN SI ENGINE BY PREHEATING OF CATALYTIC CONVERTER USING GLOW PLUG

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Abstract

Automobile vehicles emit substantial quantities of hydrocarbons (HC), carbon monoxide (CO), Nitrogen Oxides (NOx) and particulate matter. Catalytic Converters implemented in motor vehicles have aimed substantially at reducing harmful emissions from motor vehicles. The Catalytic Converter does an excellent job at converting the gases, but its efficiency can still be improved to a larger extent. One of its biggest shortcomings of the converter is that it activates only at the light-off temperature (i.e.) 400 degree Celsius. Thus, at cold start and idling conditions, the Catalytic Converter is inactive and the gases are passed straight through it. Preheating the Catalytic Converter is a suitable and quick way to reduce emissions. The easiest way to preheat the Converter is to use an Electric Coil (or) an Electric Heater. The heating element supplies heat to the Converter. But, adopting this technique can be quite a tricky task as the positioning of the heater is not easy and this may affect safety. In this work, an attempt was made to preheat the catalytic converter using glow plugs. These plugs are placed by the drilling holes in the Converter. The number of Glow Plugs directly determines the rate and rise of temperature of the Converter. The Converter quickly reaches the light-off temperature level due to the heat supply from the Glow Plugs and the sensible heat of the exhaust. By implementing this system it finally reduces light-off temperature and it leads to a decrease in HC and CO emissions during cold start conditions.

Keywords: *Catalytic converter, Light off temperature, electric heater, glow plugs*

MECL047

FEA ASSISTED DESIGN AND STRUCTURAL ANALYSIS OF VERTICAL AXIS WIND TURBINE ROTOR

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Abstract

The scope of the project is to perform finite element analysis of the Vertical axis wind turbine rotor assembly. Blade, arm, connectors and strings assembly of rotor are considered for analysis and to study the static behaviour at the different loading conditions. Total vertical load of 130 kg self-weight is acting downward direction to the structure. Considered that rotor will be rotating at maximum speed (RPM) aerodynamic load with self weight conditions. Due to higher angular velocity (152 RPM) blades will be subjected to great centrifugal force. Along with the centrifugal load rotor also will get subjected to fluctuating aero dynamic loads. In analysis it is considered as the rotor in stationary position and subjected to the maximum drag force at 50 (m/s) wind velocity at azimuth value of 90˚. SOLID92 is used for the 3-D modelling of solid structures. The maximum stress value obtained from the analysis is 183.1 N/mm2 for the loading and boundary conditions.

Keywords: *FEA, VAWT, Blade*

MECL048

DESIGN AND MATHEMATICAL MODELLING OF ELECTRO MAGNETIC MOTOR

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Abstract

The scope of the project is to design and mathematical modelling of motor by using electro magnet. The main objective is to design and selection of the optimized parameter of electromagnetic motor (EMM)for different hp with different type of magnetic shape (rectangle, cylinder, ring, sphere) to select optimized parameter to run a motor. The parameters considered for the analysis are Magnetic flux, Pull force,Torque,Horse power, Distance between the magnet block, Selection Magnetic shield etc. in this paper N40 Grade magnet and 10 mm different shape of magnets is used to to operate a motor at 1000,1500 and 500 RPM. From the mathematical modelling its observed that the magnetic shapes of rectangle, cylinder, ring, sphere generated the power of 0.83 HP, O.75HP, 0.71 HP, 0.65 HP respectively.

Keywords:*Magnetic flux, Horse power, Torque*

MECL049

NUMERICAL INVESTIGATION ON COST EFFECTIVE CONTROL OF NATURAL CONVECTION HEAT TRANSFER IN A SQUARE ENCLOSURE WITH A PLATE INSERT

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Abstract

The effect of flat plate on Natural convection heat transfer in a square enclosure for various angle of inclinations and lengths of the plate is numerically investigated. The square wall with isothermal vertical walls at different temperatures and with horizontal walls in adiabatic conditions are analysed for lower and higher laminar range of Rayleigh numbers 104 and 107. The conservative equations are solved using SIMPLE algorithm with second order upwind scheme satisfying suitable boundary conditions. Contour plots of streamlines and isothermals are used for qualitative presentation of results. Local Nusselt number and the average Nusselt number are graphically presented for various configurations. The convection heat transfer in the enclosure is found to vary with the angle of inclination and the length of the plate in addition to the Rayleigh number. The higher level of effectiveness is observed at lower Rayleigh number 104 in comparison with 107.

Keywords: *Heat Transfer, Natural convection, Enclosure, Nusselt Number, Rayleigh Number*

MECL050

NUMERICAL INVESTIGATION OF COMPOSITE STIFFENED PANEL WITH VARIOUS STIFFENERS UNDER AXIAL COMPRESSION

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Abstract

In this paper, buckling analysis of composite stiffened panel with different shapes stiffener under uniaxial compressive load was carried out. Buckling behavior of straight stiffened panel on different shape of stringers were studied and compared. Stiffeners are providing the stiffness to the stiffened panel. In this paper several types of shapes like Z- shape, L-shape, Hat shape, I-shape, C-shape, J-shape and T- shape were taken. Numerical analysis done by non- linear software (ABAQUS 6.14-1). Main motive of this paper understands the shape of stringers and influences of the shapes in buckling strength. Influences of stiffener with various cross section areas of stiffened panel were deciding the buckling strength of the panel. Once buckling strength was improved, relatively high stiffness of assembly is also improving. Closed sections and more fasteners providing high buckling loads.

Keywords:*Stiffened panel, Shapes of Stringers, ABAQUS, Initial Buckling loads and Crippling loads*

MECL051

EFFECT OF DYNAMIC STRESS ON HEAVY DUTY CENTRIFUGAL PUMP ASSEMBLY THROUGH FLUID STRUCTURE INTERACTION

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Abstract

The objective of the project is to reduce the vibration and fatigue in rotor of the centrifugal pump based on fluid structure interactions, when it rotates by the momentum of water current at different flow rate and to arrive at optimum operating conditions and perform structural analysis to determine deflection and frequency by using ANSYS 16.2 . dynamic stresses are predicted at various nodal position, this would lead to suggest the method to reduce the frequency due to vibration. Computational fluid dynamics (CFD) study using Ansys 16.2 has been carried out to accomplish the objective of the work.

Keywords:*FEA, FSI, Pump*

MECL052

DESIGN AND ANALYSIS OF AMPHIBIOUS ROBOT

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Abstract

Robots plays a major role in industrial automation and in wide range of applications such as manufacturing, surgery, or handling of hazardous materials. The aim of this research project is to design two wheeled amphibious robot which can travel on both land and water. In this project, a bot is designed with proper balancing with good structured buoyancy effects to make the bot to float without problem. Due to the mobility in water, the robot has been designed with insulation and water proof materials.

Keywords: *Biomimetic, Amphibot, Self-balancing, Buoyancy, Locomotion, Mobility, Wheels with blades*

MECL053

INFRA RED LIGHT ASSISTED NAVIGATION FOR AUOTOMATIC LAWN MOWER ROBOT

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Abstract

Currently, the mobile robotics industries moving forward with innovative approach to solve the humanitarian problems. We have concentrated on cleaning backyard and front yard landscaping; the maintenance of these premises are mundane tasks which takes up lot of human effort and consumes time. Tasks like mow grass and dusting off the dead leaf's using gardening robot for lawns and play grounds could be given to robot for effective maintenance. In this work a cost-effective method of navigation and boundary defining of the lawn/play ground is attempted. A set of defined mowing operation is coded in the robot for path planning and boundary defining of the target. Robot docking station is done using same boundary wire technique for charging the battery and resuming the work as required. The lawn mower estimate distance moved using wheel-yaw odometer. Using visual input un mowed grass and mowed grass is identified and updated in the lawn robot.

Keywords: *Automatic lawn mower, Light assisted navigation, IR assistance*

MECL054

CRASH ANALYSIS ON THE AUTOMOTIVE VEHICLE BUMPER

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Abstract

Automotive industry is a very huge ground and research is still evolving, in which safety and comfortness of passenger is plays a vital role. Safety and comfortness are depends upon the strength of automotive components, implementation of advanced techniques, etc. In this article deals the crash investigation of Bumper for different materials using CAD/CAE tool. In general, Bumper is an important part which is used as protection for passengers from front and rear collision. It is also play an important role in preventing the impact energy from being transferred to the automobile and passengers. The goal of this paper is to perform crash analysis of a bumper for different materials in order to finalize the suitable materials. The methodology employed includes study of front bumper system, design and analysis of the modified front bumper using Ansys software. This paper to investigate the structure and material employed for car bumper, in which, the most important variables like material, structures, shapes and impact conditions are studied for analysis of the bumper in order to improve the crashworthiness during collision. The reference component's modeling process is carried out with the help of CATIA, and then the impact analysis is carried by Ansys Workbench 16.2, in which the materials used for bumper are steel, Glass fiber and polyurethane with the constant boundary conditions [speed = 13.3 m sec-1]. Finally, suitable material is finalized for car bumper.

Keywords: *Crash, Composite Materials, Comparison, Deflection, Stress*

MECL055

REVIEW PAPER ON INDUSTRY 5.0

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Abstract

The fifth industrial revolution, or Industry 5.0 will completely focus on bringing back the human touch by means of a collaborative environment between man and machine, where human intelligence works hand-in-hand with automation and cognitive computing. This paper primarily focuses on the various phases of the Industrial Revolution followed by a detailed description of Industry 5.0 i.e. the factory of the future. We will lay emphasis on the building blocks of Industry 5.0 and its advantages. We will also investigate the broader implications and future scope of Industry 5.0. Finally, we will discuss about how the 5th Industrial revolution will satisfy the gradual shift in customer preference from mass production to mass personalization.

Keywords:*Customization, Cobots, Collaborative environment between man and machine, Dull, repetitive and dangerous tasks*

MECL056

A COMPARATIVE STUDY ON TRIBOLOGICAL BEHAVIOUR OF PONGAMIA BIODIESEL BLENDED LUBRICANT WITH CARDANOL BIODIESEL BLENDED LUBRICANTAT DIFFERENT LOADS

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Abstract

In this world demand for bio lubricants which are easily decomposing, non-toxic and non-polluting is increasing day by day. This paper describes and compares the friction and wear characteristics of Pongamia blended lubricant with Cardanol blended lubricant by using Pin on disc wear testing Tribometer. For the preparation of blended lubricants, cardanol and pongamia based biodiesel were blended with base lubricant SAE20W40 in the ratios of 5, 10, and 20% on volume basis. The friction and wear characteristics of Cardanol and pongamia blended bio lubricants were carried out at the loads of 50N, 100N and 150N with the sliding velocity of 2.5m/s. By adding 5% and 10% pongamia biodiesel with base lubricant, less wear rate was observed. When exceeds this limit wear rate is also increasing gradually.While carrying out the wear test with Cardanol oil blended lubricant, least wear rate was observed during the addition of 5% and 20% Cardanol oil blended lubricant with base lubricant. The wear rate was increased while adding 10% of Cardanol oil blended lubricant with base lubricant. It has been concluded that CBL 5 and CBL 15 can act as an alternative lubricant at minimum and maximum load to increase mechanical efficiency at 2.5m/s sliding velocity and dependency on petroleum-based products was reduced with its contribution.

Keywords:*Pongamia, Cardanol, Wear and Friction, Blending Ratio*

MECL057

COMPARATIVE NUMERICAL STUDY OF STRUCTURAL BEHAVIOR OF COMPOSITE MATERIALS ON DIFFERENT CANTILEVER STRUCTURES USING FSI

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Abstract

The implementation of composite materials in industries like as aerospace, automotive, civil, naval, etc., are increasing day by day due to their light weight, high stiffness to weight ratio, excellent thermal characteristics. The present article deals with a numerical investigation on free vibration of laminated composite cantilever structures and also estimates its structural response to aerodynamic forces using Fluid-Solid Interaction (FSI) in Ansys Workbench environment. This work is intended to investigate and understand the effect of different real-time structural parameters like maximum deformation, maximum stress-induced location and modal parameters like modal frequency, mode shapes on different Cantilevered structures. Structures like wind turbines, airplane wings are critical in structural behavior, which are characteristically using the wind in order to produce power and lift respectively. The present article deals with an estimation of natural frequencies for the prediction of working lifespan and structural parameters variation throughout the cantilever structures to multi-purpose usage. The entire comparative part of this article is executed with an acceptable simulation of the displacement and principal stress

for different composite materials such as Kevlar, Glass Fiber Reinforced Plastic (GFRP) and Carbon Fiber Reinforced Plastic (CFRP) by using FSI. Composites Beams are modeled in CATIA and discretized in the Ansys ACP 16.2 tool and Modal analysis of various cross-sectional beams are reported, compared and discussed. Three-node, finite elements of six degrees of freedom per node and aerodynamically perfect sections are presented for the entire analyses of the laminated composite beams.

Keywords:*Composite; Lifetime; Fluid solid interaction; One-way coupling; Optimization;*

MECL058

COMPARATIVE STATIC ANALYSIS OF NOISE IN THE UNMANNED AERIAL VEHICLE'SPROPELLER USING CFD

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Abstract

The major use and need of the multi-rotor UAV in various fields has increased the importance to study the aerodynamics of multi-rotor Unmanned Aerial Vehicles such as the secondary flow over the blade, reduction of noise due to the propeller of the UAV, and the optimization of the design on the propeller with more blades to increase efficiency of the UAV. This paper mainly deals with the reduction of noise which is induced by the propeller. Since there is a demand for compact multi-rotor quite UAV as it has a low probability of detection using radar and infrared but as it generates high drive-line noise caused by propeller it cannot be implemented for some critical applications. As a result, an idea is launched to design a propeller with low drive-line noise levels. A methodology is developed to design a low noise as well as efficient propellers for multi-rotor UAVs. The important parameters like blade thickness, tip loss and blade loading are considered in this research. Also, the effects of propeller important parameters such as activity factor, advance ratio are considered. After the finalization of design consideration of UAV's propeller and the furthermore noise reduction methodologies also studied such as leading-edge comb, trailing edge tuft, and upper surface porosity in order to generate a perfect UAV for military applications. In order to minimize the noise produced by the propeller the idea of modifying the leading-edges is finalized. Computer-AidedDesign of base propeller and propeller with leading-edge modifications has been generated with the help of CATIA V5 and the acoustic analysis for the static base and propellers with leading-edge modifications with different velocities has been simulated using ANSYS Workbench Fluent 16.2. Finally, a propeller with the leading-edge modification has been found to induce low noise.

Keywords:*Noise, CFD, Decibel, Propeller, Quite UAV*

MECL059

CONCEPTUAL DESIGN AND HYDRODYNAMIC INVESTIGATION ON UNMANNED AQUATIC VEHICLE

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Abstract

Autonomous Underwater Vehicles (AUVs) are one of the important types of aircraft, which are traveled in underwater by the pre-programmed control method. Nowadays AUV is being proposed for many critical applications including crack detection on the dam, disaster monitoring, naval surveillance, and fisheries protection. Interest in AUVs for ocean exploration and mapping, surveillance, and forecasting have emerged steadily, in which

the AUVs design methodologies are implemented in underwater are mostly multi-rotor configuration AUVs. In underwater applications, multi-rotor based AUVs are low efficient in terms maneuvering achievability, lifetime, therefore, the designer must provide an AUV, which has the high lifetime, high efficient in design, more secure on-flight and low maintenance cost in order to survive at the critical environment. In this article proposed a unique AUV, called Unmanned Aquatic Vehicle (UAV) inspired by the strategy of flying fish, this can able to operate in underwater with high efficiency, in which estimation of efficient have been derived based on conceptual design, maneuvering attainment process, communication, a lifetime of a UAV. The accurate research on the hydrodynamic effect of UAV, which undergoes inside the water, has a great significance for its maneuverability. Research and development of this class of vehicles have grown, due to the excellent characteristics of the UAVs to operate in critical situations. Therefore, this study aims to analyze hydrodynamic flow behavior over different geometry configurations of a UAV, in order to obtain test geometry that generates lower drag force, which reduces the energy consumption of the vehicle, thereby increasing their autonomy during operation. The design of such a vehicle is challenging because it implies significant propulsive and structural design trade-offs for operation in underwater, in which the challenging to be overcome with the help of advanced engineering analyses such as CFD simulation, strong theoretical formulae, etc. In CFD Simulation, the structured grid of the computational models for different types of UAVs is generated by Ansys ICEM CFD 16.2. This discretized model represents as the replica of UAV, which is used to predict the flow behavior of the reference component, and investigate the hydrodynamic effects on its sub-components. In this article, ANSYS-FLUENT 16.2 software used as numerical solver tool, which is a powerful tool for solving problems involving fluid mechanics. Results of the velocity, pressure distribution, and drag coefficient are analyzed. The characteristics of the drag, lift, pitching moment influenced by the distance to the sea bottom and the attack angle are studied, which provided the path for UAV design optimization

Keywords:*AUV, UAV, CFD, ANSYS*

MECL060

A NEURAL NETWORK MODEL FOR THE COMPRESSIVE STRENGTH OF A HYBRID LM6 ALUMINIUM ALLOY COMPOSITE

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Abstract

Adding more than one reinforcement increases the flexibility in composites. The objective of the work is to develop a model to predict the compressive strength in an LM6 aluminium alloy reinforced with SiC and flyash particles. Central composite rotatable design had been employed to carry out the experiments with size and composition of the reinforcements as the parameters. ANN model developed has good prediction accuracy with error being less than 5%.

Keywords: *Aluminium alloy, SiCp, flyash, Compressive strength, ANN*

MECL061

EXPERIMENTAL INVESTIGATION OF THREE BLADED INCLINED SAVONIUS HYDROKINETIC TURBINE BY USING DEFLECTOR PLATE

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Abstract

This paper discusses the development of experimental test rig for an inclined Savonius hydrokinetic turbine with improvement in coefficient of power by using deflector plates. The hydrokinetic turbine was designed for different water flow velocities ranging from 1.37 m/s to 2.28 m/s in an open channel with an area of 0.0891 m2. The hydrokinetic turbine with tip speed ratio (λ) =0.8, aspect ratio (AR) = 0.72 was designed with 222 rpm as the maximum speed. To capture maximum energy from the water the deflector plate was used to increase the velocity at advancing side of the blade. The experiment was conducted with a deflector plate and without deflector plate conditions. The extreme coefficient of performance obtained was 0.24 for a returning blade angle of 60° with deflector as compared to returning blade angle of 21° and 107°. The coefficient of performance without deflector and without an inclined shaft was obtained as 0.11. The experiment was performed with deflector plates with various configurations and the torque was measured for different flow velocities.

Keywords:*Hydrokinetic turbine, the coefficient of power*

MECL062

ACOUSTIC CHARACTERIZATION OF 3D CONVERGENT-DIVERGENT NOZZLE BY ADDITION OF CHEVRON CAP WITH CURVED TIP

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Abstract

High speed exhaust noise reduction continues to be a challenge in launch vehicles. This noise reduction is possible by the concept of controlling instability generated by large-scale turbulence in the exhaust jet shear layer. However, better consideration of jet exhaust noise and propagation of high in-tensity turbulent sources of noise is the most important factor for reduction of noise in a launch vehicle. This research mainly aims to reduce the high noise levels experienced by ground crew and residential people living near the airport and rocket launch center. Chevron nozzle is one of the most feasible methods for reducing exhaust noise in the launch vehicle. Numerical analysis is carried out by using validated k-ω (SST) turbulence model. Here, in our component model, the inlet flow is assumed to be 3D, steady, compressible, turbulent and supersonic. The physics behind the mathematical model of the considered flow consists of equations of conservation of mass, momentum and energy with ap-plied boundary conditions to predict the flow properties. Currently, the engine manufacturers are using triangular sharp edge for chevron. We executed the numerical studies with a case of four lobes of chevron by implying a curved tip and found that the acoustics reduces by 5.6db and the Mach number increases by 0.01. The results obtained from the model with chevron cap when compared with the conventional model emphasize that a normal convergent divergent nozzle can be converted to a chevron nozzle in order to get a better performance and acoustic reduction.

Keywords: *Chevron, Acoustic reduction, Turbulence, Shear layer, Launch ve-hicle*

MECL063

ANALYSIS OF HEAT TRANSFER COEFFICIENTS AND PRESSURE DROPS IN SURFACE CONDENSER WITH DIFFERENT BAFFLE SPACING

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Abstract

Now days, heat exchange devices are becoming one of the essential components in complex engineering systems such as power plants and food processing industries. Especially in power plants, the surface condenser plays a crucial role in enhancing the thermal efficiency which works like shell and tube heat exchangers. Generally, the heat transfer coefficient and pressure drop of the surface condenser depends on baffle spacing. The baffle spacing significantly influences the heat transfer coefficient for the shell side fluid. CFD simulations were carried out for different cases of single pass shell and tube heat exchanger by varying the number of baffles at same operating conditions. The purpose of baffles is to support the tube bundle and directs the fluid to flow on the surface of tubes. In this study, four different cases by varying the shell diameter relative to baffle spacing and the no. of baffles were considered to evaluate the heat transfer coefficients and pressure drops. It is observed that, following the decrement in baffle spacing, the cross-flow area of shell side region decreases, hence there will be an increase in Reynolds number for shell side fluid which results in enhanced heat transfer coefficients. Moreover, the Segmental baffles are widely used in industrial applications where the purpose of enhancing heat transfer coefficient in surface condensers is to improve the condensation process of steam to liquid at faster rates.

Keywords:*Baffle spacing, CFD simulations, Heat transfer coefficient, Pressure Drop, Surface Condenser, shell, and tube heat exchanger*

MECL064

ANALYSIS OF HEAT TRANSFER COEFFICIENTS AND PRESSURE DROPS IN SURFACE CONDENSER WITH DIFFERENT BAFFLE SPACING

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Abstract

Now days, heat exchange devices are becoming one of the essential components in complex engineering systems such as power plants and food processing industries. Especially in power plants, the surface condenser plays a crucial role in enhancing the thermal efficiency which works like shell and tube heat exchangers. Generally, the heat transfer coefficient and pressure drop of the surface condenser depends on baffle spacing. The baffle spacing significantly influences the heat transfer coefficient for the shell side fluid. CFD simulations were carried out for different cases of single pass shell and tube heat exchanger by varying the number of baffles at same operating conditions. The purpose of baffles is to support the tube bundle and directs the fluid to flow on the surface of tubes. In this study, four different cases by varying the shell diameter relative to baffle spacing and the no. of baffles were considered to evaluate the heat transfer coefficients and pressure drops. It is observed that, following the decrement in baffle spacing, the cross-flow area of shell side region decreases, hence there will be an increase in Reynolds number for shell side fluid which results in enhanced heat transfer coefficients. Moreover, the Segmental baffles are widely used in industrial applications where the purpose of enhancing heat transfer coefficient in surface condensers is to improve the condensation process of steam to liquid at faster rates.

Keywords: *Baffle spacing, CFD simulations, Heat transfer coefficient, Pressure Drop, Surface Condenser, shell, and tube heat exchanger*

MECL065

NUMERICAL EVALUATION OF VARIOUS TURBULENCE MODELS FOR PREDICTING THE FLOW SEPARATION AND SHOCK LOCATION IN THE CD NOZZLE

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Abstract

The proper prediction of flow separation region and shock location in rocket noz-zle proves to be a real challenge as they can be calculated well only through nu-merical analysis. But the existing turbulence models fail to correctly locate the flow separation and shock formation. Although these turbulence models provide an approximate value which matches the real time case, they seem to vary for dif-ferent turbulence models with different nozzle pressure ratio (NPR). Hence we cannot choose the best turbulence model which can correctly predict the flow properties. Moreover, the computation time is one of the major factors to be con-sidered while selecting a suitable turbulence model. In order to overcome this dis-crepancy, we took three turbulence models namely, k-ω (SST), Standard k-ε and Transition SST for our study. The inlet flow is assumed to be 2D, steady, com-pressible, turbulent and supersonic. By comparing the nozzle wall pressure value of each turbulence model with its experimental nozzle wall pressure value, we found that k-ω (SST) turbulence model provides the best results. The numerical analysis proves that RANS prediction of flow separation depends on accurate capture of the jet spreading rate, and it is feasible for different NPR.

Keywords:*Flow separation, Turbulence, Shock formation*

MECL066

EXPERIMENTAL INVESTIGATION OF WINGTIP VORTICES USING A HALF DELTAWING AT THE TIPS

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Abstract

The counter rotating wing tip vortices produced by the aircraft continues to be a big concern for the aviation industry and the aircraft manufacturers due to its hazardous effects on the flight safety and aircraft efficiency. The strength of the vortices poses severe problems to the aircraft operations. Manufacturers developed various wingtip devices to alleviate this problem, but still it is not fully understood and solved. In this thesis, the effectiveness of using a half delta wing at the tips is investigated. The flow field over a low aspect ratio NACA 0015 wing fitted with a slender sharp half delta wing with a leading edge sweep angle 700 at a Reynolds number 1.87 ×105 is investigated. Particle image velocimetry is used to quantify the vortex structure and force balance measurements are used to calculate the aerodynamic data of the wing. The peak vorticity, peak tangential velocity are decreased due to the addition of half delta wing. The over-all radius of the wingtip vortex increased showing a diffused vortex due to the addition of the half delta wing. The core circulation is decreased leading to a lower strength vortex. Though the tip device increased the drag, it increases the aerodynamic efficiency through the improvement in L/D.

Keywords:*Wingtip vortices,wind tunnel testing,PIV,Induced drag,circulation,Delta wing*

MECL067

DESIGN AND ANALYSIS OF HEAT RECOVERY SHIELD AT HOT ROLLING MILL IN STEEL INDUSTRY

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Abstract

This paper presents the heat transfer analysis of hot rolling bar (HRB), exactly between roughing mill and steckel mill. The bar is heated up to 1250°C in the furnace for three hours. The hot bar stock enters the roughing mill. Here, the bar stocks are fed for seven passes and the thickness is reduced to 25 mm. The elongate hot bar then travels approximately 126m in the open air surrounding over roller before entering the steckel mill. Transfer bar is rolled in steckel mill in 3 to 7 passes to achieve required thickness. It is adopted with the most sophisticated rolling technology of level-2 automation to achieve the target thickness, profile and flatness. There is a considerable loss of heat during this travel due to convection and radiation. This has been identified as the place, where the objective is to minimize heat loss taking place. Catia V5 is used for modeling and Ansys Workbench is used for thermal analysis.

Keywords:*Convection, Heat Transfer, Hot Rolling Bar, Radiation, Steckel mill*

MECL068

EXPERIMENTAL STUDY ON THE WEAR RATE AND HARDNESS Vs. AGING TIME ON THE REINFORCED ALUMINIUM COMPOSITES

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Abstract

The present research work is carried out to study about the wear rate of the heat treated Aluminium 6061 composites and to study about the hardness vs. aging time dependency of the developed composites. The composite specimens were prepared using stir casting technique. The graphite content is varied from 2% to 6% in the aluminium matrix. The pin on disc apparatus is used to measure the wear rate. The Rockwell hardness value of the prepared composites was measured at the aging duration of 1hr, 2hr, 3hr.

Keywords:*Aluminium composites, Wear, Hardness, Aging*

MECL069

A REVIEW ON IMPROVEMENT OF COMPRESSIVE AND FLEXURAL STRENGTH OF THE CARBON EPOXY COMPOSITES WITH THE ADDITION OF VARIOUS FILLERS TO THE EPOXY RESIN

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Abstract

Compared to the tensile strength of the composites the fibre reinforced polymer composites are weaker in compressive strength in case of structural applications, by improving such properties will lead to wider applications of composites. This is a review paper explains about small imperfections, such as fiber misalignment, microbuckling, kinking and its impacts on the compressive properties of the composites. The small modification in the matrix provides increase in the compressive and flexural strength of the carbon fiber reinforced epoxy composite, the modification is done by adding various fillers in different ratios to the epoxy matrix and the review of its significance is provided in this paper.

Keywords:*Imperfections in composites; carbon fiber; epoxy; fillers; compressive strength; flexural strength*

MECL070

DEVELOPMENT OF ENGINE OIL CONDITION AND LEVEL MONITORING SYSTEM ON SMART DASHBOARD

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Abstract

Engine Oil plays an important role in lubrication process of an Internal combustion Engines. The quality & quantity of Engine oil determines the overall performance of the Engine. (fuel economy, emission, wear characterises etc). Today Engine oil quality and level is monitored by manual method which requires a skilled labour and human efforts. This system is developed as an account to address this problem where the oil quality and quantity details are monitored onboard and the information is directly transferred to the dashboard of the vehicle. This system can be readily integrated to the vehicle and can be further upgraded to gather the details such as viscosity, Oiliness, Volatility Stability & Insoluble residue. A turbidity sensor is used to measure the purity level of the oils and reed sensors are used to scale the quantity required. The prototype of the monitoring device is has been developed and the functioning is oil level monitoring, and to make all this work an embedded program is developed to perform the necessary function. The values like the purity and level of engine oil used, the level of brake oil and also the level of coolant available in the vehicle all these three values will be displayed on the dashboard of the vehicle when incorporated with this system.

Keywords:*Engine Oil;Turbidity; Reed sensor*

MECL071

MODIFICATION AND EVALUATION FOR IMPROVEMENT OF AERODYNAMIC PERFORMANCE OF A FORMULA CAR

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Abstract

Aerodynamic Drag is the opposing force acting on a moving vehicle which influences the performance of a race car that can be reduced by adding few aerodynamic components or by optimizing the body-shape of the vehicle. As drag doesn't require any modification in power train, the race vehicle should be designed in such a way that it has minimum drag. In this paper, a model of a formula student (FS) car vehicle has been studied, analysed and tested for improving the aerodynamic performance for motorsport application. A CAD model of the formula car was developed as per the rules of the SAEINDIA Supra regulations and simulated using a CFD tool. The zones of turbulence and drag were observed and a 3D printed scaled-down model was tested in a wind tunnel for a comparative study. Later the model was modified in accordance to results of the initial model and the CFD analysis was carried out for the redesigned version. Finally, the model was further refined for better aerodynamic performance and a prototype of the same was developed, analysed and tested which had a 30% aerodynamic performance improvement. The main limitation of this research is that, manufacturing of such designs could be a challenge for the manufactures but not impossible. Results from CFD and wind tunnel may vary depending upon the surface finish and also the boundary conditions have an impact on the results.

Keywords:*aerodynamics, motorsport engineering, formula car design, CFD simulation, wind tunnel test*

MECL072

EXPERIMENTAL INVESTIGATION OF PEM FUEL CELL STACK WITH COMMON RAIL USING COMPUTATIONAL FLUID DYNAMICS

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Abstract

The PEMFCs performance depends on the operating parameters like temperature, pressure, stoichiometric ratio of reactants, relative humidity, back pressure on anode and cathode flow channels, and the design parameters like rib width to channel width (L:C), channel depth, shape of the flow channel and number of pass on the flow channel. Among different flow field designs, the serpentine flow field can give better performance of PEMFC. This paper numerically investigates the effects of the single-pass serpentine flow field of 70cm2 active area of the PEMFC 2 cell stack using common rail has been carried out. The three dimensional PEMFC with rib to channel ratio (L:C) of 2:2 for single-pass serpentine flow channel were modelled by solid work 13, meshed by ICEM 14.0 software packages and simulated using CFD Fluent 14.0 under operating pressure and temperatures of 2 bar and 353 K respectively with a constant mass flow rate. The numerical modelling results on performance of PEMFC have been investigated.

Keywords:*Pass Serpentine Flow Channel, PEMFC, Rib to Channel ratio, CFD Analysis of PEMFC*

MECL073

STUDY ON ECO - FRIENDLY DRIVE SHAFT PRODUCTION

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Abstract

Awareness of sustainable products and government policies among the consumers influenced manufacturing industries to recognize the value of sustainability concepts. There are three key aspects of sustainability concepts namely financial, social and environmental regarding to manufacturing organization. The categorization of aspects are based on design of product, material used and manufacturing process followed. The material used and manufacturing process followed in current drive shaft has some environmental effects throughout its life span. This paper attempts to investigate the prospect of reducing environmental effects considering alternate materials and manufacturing process in drive shaft production.

Keywords:*Sustainability, LCA, Material Identification, Sustainability Analysis*

MECL074

CHARACTERIZATION OF STAINLESS STEEL 410 L PTA HARDFACED VALVE SEAT RINGS

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Abstract

The effect of wear is drastic paving way for fallouts on metallic components during their application and as well as in their cost. In the recent years, while unscrambling wear problems, it is found that hard facing technique has substantially grown up. Stainless steel 410 L is deposited on the face of low carbon steel ASTM-A105 valve seat rings by plasma transferred arc welding process. The mathematical model for predicting the main and interaction effects of PTAW variables for stainless steel hardfacing for which the dilution and bead geometry from the experimental data were obtained. The experiments were based on the central composite rotatable design matrix of five factor, five level factorial technique. Regression analysis was used to develop the models and the variance method was used to test their adequacy. The percentage dilution was optimised (minimised) subject to the constraints of penetration, reinforcement, width and the total area of the weld bead geometry. During optimization, enormous amount of data was generated from iterations and substantial calculations needed with each design cycle requiring. The optimization module available in the toolbox of Quality America six-sigma software suit DOE-PC IV version 3.01 was used. The conformity test was conducted, the optimized results were verified, and the percentage of error was calculated. The impact of the main factors on the dry sliding wear resistance of Stainless Steel 410 L alloy was investigated under conditions leading to an obdurate metallic wear condition of the hard facing alloy. Mathematical model was developed relating the wear and the main factors, such as, normal load, Disc Speed, track radius. Optimization of the model was accomplished aiming to minimise the wear rate by using a three-level factorial technique. Mathematical models relating wear testing parameters to wear and coefficient of friction were developed using QA Six Sigma DOE IV PC software package. The results obtained show that the developed mathematical model can be applied to assess the validity of the factors for a desired wear condition and the wear and coefficient of friction were found to increase when the normal load and disc speed increased.
Keywords: *Wear, Hard facing, Plasma transferred arc welding*

EXMECL001

LOWERING OF BRAKE FADE IN AUTOMOTIVE

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Abstract

Brake fade occurs in brake discs of automotive during long brakes due to high moment of inertia. Brake fade component can be reduced with the help of water quenching. In this paper a transient thermal analysis is carried out in brake disc with air convection value and water convection value and it is found that the minimum temperature obtained by air and water convection are 448oC and 60oC in 80 s from an initial temperature of about 500oC. In addition, a model experiment setup is fabricated and the working of PIC, pump is checked with an operating temperature of 35oC. The pump gets power supply from PIC when temperature reaches 35oC and hence same application can be used for 500oC. Thus, brake efficiency increases even under high moment of inertia and decreases the accidents in hill stations.

Keywords: *Brake fade, Surface temperature, Condenser, Catalytic converter, ECU, Braking Unit.*

EXMECL002

DESIGN AND FABRICATION OF AUTOMATED URINAL FLUSHING SYSTEM USING MECHANICAL ELEMENTS WITH DISINFECTANT

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Abstract

In India, One of the most important problem is Infected Public Toilets especially Urinals that no one worried about the Flushing of Urinals. Hence, the infected urinals cause diseases to the users by spreading infectious germs, therefore complete cleaning of urinals is essential to maintain the hygienic conditions. In this paper, to tackle this problem by the development of Urinal flushing system with a less usage of water. This flushing system is made of mechanical elements. Automatic flushing system is one of the essential technologies in India as it is used for maintaining hygienic conditions especially in public urinals. This flushing system does not require an electric power as making it highly useful and reliable in public places like garden and public urinals. Also, this system conserves the water and the electricity. In this setup, Rocker Disc is connected with the mechanical linkages for the flexibility of valve operations.

Keywords:*Automation, Flush system, Mechanical elements*

PH 001

STUDIES ON THE GROWTH ASPECTS AND NUCLEATION KINETICS OF AN ORGANIC SINGLE CRYSTAL: 2-CARBOXYPYRIDINIUM MALEATE (2-CM)

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Abstract

Our ability to grow crystals with desired properties and control over crystallization based on structural understanding is still limited. Crystallization is an important separation and purification process in many areas such as chemical, pharmaceutical, petrochemical and electronics industries. The dependence of the kinetics of nucleation and crystal growth on solution conditions and supersaturation differs greatly. Thus, fully understanding the nucleation thermodynamical qualities and completely controlling crystallization parameters are invaluable for successful production of crystal. The solubility and metastable zonewidth of 2-CM were determined by gravimetric and polythermal method respectively. The induction period was found for different supersaturation ratios, which reveals that the induction period decreases with increase in supersaturation. The interfacial tension (γ) values were estimated from the experimental data. Nucleation parameters of 2-CM such as energy change per unit volume (ΔG_v), critical free energy change of the nucleus (ΔG^*), radius of critical nuclei (r^*), nucleation rate (J) and also number of molecules in the critical nucleus (i^*) were calculated using classical theory of homogenous nucleation. The determined parameters were optimized and the results will be discussed in detail.

Keywords: *Nucleation, Crystallization, Bulk growth*

PH 002

NANO/MICRO SCALE SURFACE DEFORMATION MEASURMENT BY LASER SPECKLE:A REVIEW

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Abstract

In this present review a compilation is given to demonstrate the number of laser based speckle techniques available to quantify deformation.The deformation measurement for different specimens like aluminium,solar wafers ,thin films and solar cells are discussed in detail. A special reference was given for the quantification of deformation in submicron range .The deformation of the sample by thermal and mechanical methods are discussed in detail.This review also encompasses the crack detection and damage threshold of the specimen by laser based techniques.A comaparitive analysis is also carried out to optimize the best viable method for deformation quanitification.The necessity of the digital push in analyzing the images for accurate results are also discussed.

Keywords: *Laser speckle,Surface deformation,Image processing*

PH003

REVIEW PAPER ON IMPROVE THE CHARACTERISTICS AND PROPERTY OF GREY CAST IRON

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Abstract

There is many type of cast iron with different characteristics and properties and we selected the grey type cast iron and improve the characterization for that by regarding process. The grey type cast iron is need the effective hardness and prevent the cavitation damage. The addition of a thickness growth behavior of flake-shaped graphite was observed in the nitrogen diffusion layer. Then two type of nitriding process are done for the spheroidal graphite iron surface and the unique feature of this process in treating the sharp edges with high strength and controllable layer thickness has been emphasized. This triplex coating consists of silicon enhance with nanocomposite and a film is coordinate by the plasma nitrocarburized duplex case. This nanostructured composite film is shown for high toughness and extremely low coefficient of friction. A result of cavitation erosion test, the maximum surface damage depth increased greatly due to a crater growth behavior along the depth on the flake-shaped graphite distributed on the surface and a good hardness gradient and elastic modulus gradient is achieved that provide an improvement in life.

Keywords: *Plasma nitriding,cast iron, nanocomposite,Hardness*

PH004

ULTRASONIC AND CONDUCT METRIC STUDIES ON ION-SOLVENT INTERACTIONS OF AQUEOUS BINARY MIXTURES OF PVP WITH MONOVALENT AND DIVALENT METAL CHLORIDES AT 303.15 K

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Abstract

The ultrasonic velocity data and the values of density, viscosity and electrical conductivity have been measured for the aqueous binary liquid mixtures of polyvinyl pyrrolidone with monovalent and divalent metal chlorides at 303.15 K. From the measured values the acoustical data such as acoustic impedance(Z) ,intermolecular free length(Lf) ,relaxation time(τ),Rao's constant(R) ,Wada's constant(W) have been computed to scrutinize the ion-solvent interactions. The observed results have been interpreted in terms of solute solvent, solute –solute interactions between the constituents of liquid mixtures. Structure making and structure breaking nature of the monovalent and divalent metal ions at various concentrations in aqueous PVP have been disclosed.

Key words: *Ultrasonic velocity,electrical conductivity,metal chloridesWada's constant,ion-solvent interaction.,*

PH005

Q-SWITCHED ND-YAG LASER HISTOGRAM ANALYSIS FOR TRISGLYCINE ZINC CHLORIDE - A TRANSPARENT NONLINEAR OPTICAL SINGLE CRYSTAL

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Abstract

We report on the experimental observation of speckle formation from trisglycine zinc chloride, a transparent nonlinear optical single crystal. Laser illuminated damage on the surfaceofsingle-crystal has been studied under Q-switched 1064-nm Nd:YAG laser irradiation at 6 nsec pulses. Histogram analysis is used to investigate laser induced damage and structural modification of trisglycine zinc chloride crystal for (110) plane. Comparison of SEM image and laser speckle pattern has been analysed to study the surface modification of the crystal by the irradiation of laser. Intensity variance and correlation of laser speckle images formed by self-interference pattern of scattered light fromNLO crystal hasbeen studied.

Key words: *Q-switched Nd-YAG laser, NLO material, Histogram, speckle, SEM image*

PH006

AN INVESTIGATION OF NIW THIN LAYER COATINGS ON MILD STEEL THROUGH ELECTRODE POSITION METHOD

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Abstract

In order to enhance the structural and mechanical properties of mild steel, NiW nanocrystalline thin layer has been coated on the surface of mild steel through electroplating technique at bath temperature of 40˚C over the deposition time of 45 minutes. The nanocrystalline NiW alloy coatings were deposited on mild steel at constant current density of 1 A/dm2. The structural and chemical characterizations of the NiW alloy coated mild steel were performed by scanning electron microscopy (SEM) and X-ray diffraction pattern (XRD). The micro hardness value of the coated mild steel was determined by using Vickers Hardness test. The effect of NiW on wear behavior of mild steel was analyzed using Pin-on-disc apparatus. The mechanical properties of mild steel such as hardness, roughness and wear resistance have been enhanced in an appreciable manner. This is primarily due to the NiW alloy coatings on mild steel. The variations in structural and mechanical properties of NiW coated mild steel were also studied.

Keywords: *Mild steel, NiW, hardness, roughness and wear.*

PH007

EFFICIENT GROWTH TECHNIQUES OF L-PROLINE CADMIUM CHLORIDE MONOHYDRATE CRYSTALS FOR NLO APPLICATIONS

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Abstract

L-proline cadmium chloride monohydrate is one of the semi organic material for their efficient second harmonic generation. This review is mainly emphasized on the discussion of growth, efficiency and applications of L-proline cadmium chloride monohydrate. Growth of L-proline cadmium chloride monohydrate crystals by various techniques adopted has been discussed such as Sankaranarayanan–Ramasamy (SR) method, slow evaporation method and slow cooling method. The SHG efficiency of L-proline cadmium chloride monohydrate crystal has been compared with the standard KDP crystal. Also optical transparency behaviour of the L-proline cadmium chloride monohydrate crystal has also been reviewed.

Key words: *Semi-organic NLO, SHG, Optical transparency*

PH008

NANO/MICRO SCALE SURFACE ROUGHNESS MEASUREMENT BY LASER SPECKLE:A REVIEW

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Abstract

In a structural mechanics understanding the quality of the specimen by laser speckle occupies a predominate role. In this present compilation we have accumulated the wide variety of laser speckle technique available to navigate surface roughness.This review presents the detailed information about the advantages and disadvantages of the non contact method. A focused attention was also given in collecting the methods available for the quantification of surface in a submicron range. Since the optical method is non contact,less expensive, real time and speedy the usage of this method is increasingly relevant. This article gives the consolidated view of the different laser speckle techniques employed in three stages likely the choice of specimen,capturing method and image processing.

Keywords: *Laser speckle, Surface roughness, Image processing*

PH009

SYNTHESIS, STRUCTURAL AND MECHANICAL PROPERTIES OF ELECTROPLATED NIMO NANOCRYSTALLINE THIN FILMS

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Abstract

The nano crystalline thin coating of nickel (Ni), iron (Fe) and molybdenum (Mo) on the surface of mild steel at two different bath temperatures has been successfully carried out by using electrodeposition technique in order to reveal the full potential of NiFeMo thin films. The structural characteristics of NiMo thin films were analyzed by Scanning Electron Microscope (SEM) and X-ray Diffraction method (XRD). The chemical composition of the coated thin films has been studied by Energy Dispersive X-ray analysis (EDAX). The mechanical properties of NiFeMo thin films like corrosion resistant have been analyzed by polarization and impedance spectroscopy. The NiFeMo thin films exhibits better mechanical properties than that of NiFe thin film and its promising future in different fields has been discussed. The variations in such properties of the coated mild steel were also investigated.

Keywords: *Electrodeposition, mild steel, molybdenum, EDAX, NiFeMo and corrosion resistant*

PH010

THIN FILM THICKNESS MEASUREMENT BY DIGITAL LASER SPECKLE INTERFEROMETRY

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Abstract

In this work, Digital Laser Speckle Pattern Interferometry (LSPI) technique has been implementedto estimate thickness of a thin film by fringe assessment. Michelson interferometer was the basic principle adopted to obtain the fringe pattern by a high resolution CCD camera. The thin transparent film under test is engaged in one end of the interferometer is adjusted for clear fringe orders. Tilting the thin film with known angle fringe movementson account of the changes in optical path. Measurement of known angle of tilt by the arrangement of experimental setup and the corresponding change in fringe order helps to estimate the thickness of the thin film.Results of thickness of the transparent thin film is well in agreement with conventional gauge methods.

Keywords: *Digital laser speckle pattern interferometry, thin film thickness, fringe order.*

PH011

NI DOPED COPPER OXIDE NANO CRYSTALS PREPARED BY NANO FIBER GENERATOR: SYNTHESIS AND CHARACTERIZATION

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Abstract

Improvised electro-spin coating unit was designed and optimized to fabricate nano-fibers. Composite nanofibers of Ni doped CuO dissolved in PVA were fabricated using this unit. The prepared fibers were annealed at different temperatures from 400 °C to 600 °C using muffle furnace, all the continuous fibers were broken down to nano crystals. The structural and composition of the nano crystals are analyzed using XRD and EDAX measurements. The X-ray diffraction peaks revealed that the crystals are monoclinic crystalline structure. The composition of the crystal is confirmed as CuO from the percentage of constituents of Copper and Oxygen in EADX results. The optical properties of the fibers are studied by using spectrophotometer. The optical band gap energy is found to be 1.25 eV. The surface morphology of the crystal was studied using FESEM analysis. The crystals are found to be defect free and they are excellent material for high sensitive optoelectronic devices.

Key words: *Electro-spin, optoelectronic, nano-fibers.*

PH012

EFFECT OF NANO STRUCTURED NICKEL (NI) BASED THIN LAYER COATINGS ON STRUCTURAL AND MECHANICAL PROPERTIES OF MILD STEEL

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Abstract

The nano crystalline thin coating of NiFe and NiPon the surface of mild steel at bath temperature of 40 ° C has been successfully carried out by using electroplatingtechnique in order to enhance the structural and mechanical properties of mild steel. The NiFe&NiP thin layers were coated on mild steel at constant current density and pH over a deposition period of 30 minutes. All the coated mild steel samples were subjected to various characterization techniques like X-ray Diffraction method (XRD), Vickers hardness, surface roughness and wear test to reveal the effect of NiFe and NiP on mild steel.The mechanical properties such as surface roughness and wear behavior were investigated by using Stylus profilometer and Pin on disc method. The coated mild steel exhibits enhancedmechanical properties than that of uncoated mild steel. The variations in structural and mechanical properties of coated mild steel were also studied.

Keywords*: Current density, NiFe,NiP,XRD, and pin & disc*

TT001

FABRICATION OF SERICIN BASED WOUND DRESSING FOR DIABETIC FOOT WOUND ULCER

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Abstract

Many innovations and researches based on silk sericin are being exhibited in various textile applications especially in medical textiles and bio- active textiles due to its properties. Sericin is a macromolecular protein extracted from the cocoon of silkworm bombyx mori, which is used for the wound healing process with precise conditions and selection of methods. Sericin has properties including cell protecting and antioxidant action, moisture regulating ability, wound healing, antibacterial and antimicrobial, protection against ultraviolet radiation, anti-tumour and anticoagulant properties. In addition, the unique properties like **Solubility, molecular weight, and gelling properties,** good hydrophilic properties, compatibility, and biodegradation helps in serving sericin as wound healing covering material or wound dressing for chronic wounds. As the diabetic wounds are considered as chronic due to high glucose level, it delays the healing which causes the disruption in the stages of the wound healing process. Due to this problem, the healing process becomes chronic for months and years that may lead to myocardial infarction, fatal stroke and even death. In this study, to avoid the above mentioned complications, the wound dressing is prepared to heal those wounds without any infection using sericin that enhances the primary cultured human skin fibroblasts. Sericin involves in the migration of fibroblasts which is a crucial step in wound healing process because it involves the proliferation, contraction and collagen production.

Keywords: : sericin, wound dressing, wound healing, hot water extraction

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TT002

AN INVESTIGATION OF AIR VORTEX YARN WITH DIFFERENT BLEND PROPORTION

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Abstract

Innovation in the current scenario is not only focus on quality improvements, but also on economic way of producing a product. Air vortex yarn produced by MVS found to be slowly replacing conventional ring spun yarn. Now it becomes more difficult to produce Ring yarn due to scarcity of manpower, shortage of power and more supervision in many stages of process. The aim of the project work is to produce Air Vortex yarn & Ring yarn of Ne32/1 PC(18.45Tex) with various blend proportions such as PC-35/65, 65/35, 50/50, different air pressure such as 0.45 mPa, 0.55 mPa & 0.65mPa in Airvortex and compared their yarn properties.

Keywords: *Air vortex, PC blend, spinning*

TT003

DESIGN AND DEVELOPMENT OF COMPOSITE BASED ON ROSELLE FIBRE

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Abstract

Natural fiber-reinforced polymer composites have gained attention among materials scientists and engineers in recent years due to the need to (i) develop an environmental friendly material and (ii) partly replace currently used synthetic fibers in fiber-reinforced composites. The benefits of natural fiber composites include high specific strength and modulus, low cost, light weight and recyclability. Therefore, natural fiber-based composites have good potential for use as structural materials. Several authors have reported the use of natural fibers such as Palmyra, sisal, banana, oil palm, henequen, jute, hemp and wood pulp as reinforcements in polymer matrixes.Polyester matrixes possess exceptional adhesive properties, high rigidity, dimensional stability and exceptional heat and fire resistance due to a highly cross linked aromatic structure. The modification of polyester resins by the inclusion of fibers particulate fillers or elastomeric materials enables them to overcome high brittleness, cure shrinkage and the major drawbacks that prevent the widespread application of resins. Polyester resin generates chemical bonding with lignocelluloses reinforcement, leading to strong forces between the fibers and the resin. Thus, a high compatibility in the system between the vegetable fibers and polymer is achieved. It has been reported that hemp fiber is a potential reinforcement for polyester matrixes. In recent years, polymer composites reinforced with short, natural fibers have gained importance due to the advantages they impart during processing, their low cost and their high strength. The properties of short fiber composites are strongly influenced by the fiber length, fiber orientation and fiber weight percent. Velmurugan et al. studied the mechanical properties of randomly oriented short Palmyra fiber-reinforced composites and identified the critical fiber length and optimum fiber weight percent of short Palmyra fiber polyester composites as 50 mm and 53%, respectively The following way the project carried out Extraction of Roselle fibers from Roselle plant, Chemical treatment of Roselle fiber to modify feel Characterization of Roselle fiber Development of composite based on Roselle fiber. To determine the mechanical properties of composite

Keywords: *Polymer, composite, matrix,chemical bonding*

TT004

INVESTIGATION ON THE APPLICATION OF MIMOSA PUDICA AND AZADIRACHTA INDIC LEAF METHANOL EXTRACT ON COTTON GAUZE FABRIC

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Abstract

This paper describes the application of Mimosa pudica and Azadirachta indica leaf methanol extract on cotton gauze bandage fabric. Fourier Transform Infrared Spectroscopy was performed to analyse the methanol extracted solution using 0.1% NaOH. The methanol extracts of the two herbs Mimosa pudica and Azadirachta indica in two ratios 1:2 and 2:1 was applied on cotton gauze fabrics using padding mangle at room temperature. Presence of gram-positive Staphylococcus aureus and gram- negative Pseudomonas aeruginosa bacteria of treated samples were studied following the AATCC standards. The result of tests for in vitro antibacterial activity indicates that the methanol extract of ratio 2:1 showed significant activity against Staphylococcus aureus and Pseudomonas aeruginosa microbes with the zone of inhibition was 15mm and 18mm respectively. Bacteria reduction Percent

were higher for 2:1 ratio treated sample. The analysis of total flavonoid content found that the 2:1 ratio sample extract contains higher amount of flavonoid extract 2.1159 mg/ml and flavonoid is responsible mainly for the antibacterial activity of Mimosa pudica and Azadirachta indica leaf extracts.

Keywords: *Mimosa Pudica, Azadirachta indica, Cotton Gauze, Wound Healing, Antibacterial.*

TT005

INVESTIGATION OF HERBAL DOPED PVA ELECTROSPUN MAT FOR BIOCOMPATIBILITY SUITABLE FOR WOUND DRESSINGS

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Abstract

Electrospun biocompatible fiber mats were made with Poly Vinyl Alcohol (PVA) using a biocompatible solvent Dimethylsulfoxide (DMSO) because of its compatibility. We have also used the herb **"***Thespesia populnae***"** to produce herbal doped electrospun mats**.** Five samples are produced by varying the percentages of PVA and herbal and the parameters in electro spinning machine. Among those samples, fiber is formed properly when PVA and herbal are taken in the ratio of 5% and 10% respectively and when Distance, Flow rate, Voltage are set as 15cm, 0.05ml/hr and 14kv respectively. The PVA fibre formation is investigated using scanning electron microscope (SEM). Fourier Transform Infrared Spectroscopy (FTIR) has been done to confirm the presence of functional group of the herbal and PVA in the mat. Antibacterial testing was done for the samples and the zone of inhibition was found to be 5-10 mm. Drug release test revealed that the drug from the electrospun mat was better around 70%. *In-vitro* cytotoxicity test was done and the result obtained was negative since large amount of DMSO was used for dissolving the herbal. Hence it can be controlled by reducing the usage of DMSO.

Keywords: *Biocompatible – PVA – DMSO - Thespesia populnae – SEM - FTIR - In-vitro cytotoxicity test*

TT006

STUDY ON THE EFFECT OF PLASMATREATMENT ON COTTON KNITTED FABRIC

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Abstract

Plasma surface treatments show distinct advantages, because they are able to modify the surface properties of inert materials, sometimes with environment friendly devices. This study demonstrated that the changes in functional and comfort properties of knitted cotton fabrics were treated with air plasma and argon atmospheric plasma. Thereafter, the hydrophilicity and the wickability of plasma treated samples increased, and also the contact angles decreased significantly. Morphological changes were observed by SEM. To improve the comfort properties, one should ensure the smoothness of fabric surface, air permeability, heat transmittance as well as hydrophilicity of the knitted fabrics, by selecting the proper process parameter. The results were inspected for assessing to what extent the replacement might be achieved by inducing this surface modification method.

Keywords: *Cotton knits, Plasma, Performance, Wicking, Comfort properties.*

TT007

EFFICACY OF SODIUM ALGINATE AND CHITOSAN BIOPOLYMER IN BLOOD CLOTTING BANDAGES

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Abstract

Hemorrhage control is vital for clinical outcome after surgical treatment and prehospital trauma injuries. Numerous biomaterials have been investigated to control surgical and traumatic bleeding. Most of the traumatic deaths are due to uncontrollable blood flow. Biopolymers used in medical applications are alginate, chitoson, hyaluronic acid, collagen, polyurethane, polyethylene oxide, cellulose, gelatin. Biological function of alginate fibre give strength and flexibility, because of this property it is used as superior wound dressing. Alginate and chitosan biopolymers are widely used for wound dressing because of its inherent properties like antibacterial, biocompatibility, absorbing capacity of specific blood solutes and wound exudates etc. Hence dressing films made out of alginate, chitosan polymers are studied to enhance the positive effect on haemostatic function. This study shows that Alginate biopolymerr and chitosan have good haemostatic property through bleeding time and clotting time analysis.

Keywords: *Alginate, Chitosan, Alginate, Biopolymer, Blood clotting..*

TT008

SYNTHESIS OF POLYMERS USING BIOCATALYSTS

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Abstract

Polymers are formed by different reactions of monomers like ring opening polymerisation, co-polymerisation and condensation polymerisation, which require catalysts to enhance the process. Metallic, organometallic and biocatalysts are the types of catalysts available for polymerisation, the former types are the mostly used methods of polymerisation while biocatalysis is recently being studied widely. Metallic catalysis requires high reaction conditions like temperature, pH which results in high energy consumption and it is also noted in some reactions that the catalyst is not removed completely from the polymer solution and the residue may cause harmful effects during end use. Biocatalysts are enzymes that have the ability to catalyse polymerisation reactions and hence this mechanism is used to synthesize polymers in the laboratory artificially. The environmental impact caused while using biocatalysts over metallic catalysts is drastically reduced because normal reaction conditions are used and the polymer is safe for all kinds of end use including medical applications.. This review article discusses the various types of enzymatic polymerizations that have been done in the past using two commonly used enzymes, namely Lipase and Cutinase. Although the molecular weights of the polymers synthesized by this process are not as high as those using metallic catalysts, these polymers are safer to use in all the medical and other fields. Reasonable molecular weights are achieved using biocatalysis and it proves to be the best method to produce biodegradable and biocompatible polymers.

Keywords: *Enzymes,polymers, lipase, cutinase*

TT009

STUDY ON INFLUENCE OF YARN STRUCTURE ON COMPORT PROPERTIES OF WOVEN FABRIC

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Abstract

Clothing is designed to a much greater extent by fashion and technological development than by any scientific analysis of the heat exchange permitted by clothing between the wearer and his environment. But to improve the comfort and performance of the wearer, it is necessary to develop a systematic understanding of the relationship between textile materials and human physiological responses. In this paper study the comfort properties of plain and twill woven fabrics by using various yarns of different structure were analysed. The mentioned yarn structures were ring, and compact with the common count of 40^{s}Ne. The study has been made on thermal properties, water vapour permeability of samples and based on the results the relationship between the parameters were analysed. It is shows that yarn structure has significant impact on comport properties of fabric.

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Keywords: *Yarn structure, comfort, Thermal properties, Air permeability, Water vapour permeability*

TT010

DETAILED INVESTIGATION OF WEFT KNITTED INTERLOCK FABRICS FOR COMFORT PROPERTIES TO SUIT FOR ACTIVE AND SPORTSWEAR APPLICATION.

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Abstract

In recent years, the consumption of textile fibres and fabrics in manufacturing of sportswear has seen a significant growth. Developments in active sportswear manufacturing has been progressing to perform high functions and to achieve comfort. The sportswear manufacturing industries keep their focus on use of innovative textile science and technology in the manufacturing of active sportswear fabrics. The use of novel ideas in manufacturing of active sportswear fabrics is continuously enhancing to accomplish the requirements for athletics activities for their better performance in sports. The demand for knitted garments all over the world are rapidly growing due to its simple production technique, low cost, high levels of clothing comfort and wide product range. Knitting technology meets the rapidly-changing demands of fashion and usage.Recent day's development in active sportswear fabrics has been progressing to perform high functions and to achieve comfort. The contributing factors for development of active sportswear fabrics are fibre science and production techniques to obtain functional fabrics for active sportswear application. Developments of interlock fabrics with different material in face, back and inlay with different derivative structures are given more attention by many researchers now. Very limited quantum of research has been carried out in this area so far. Therefore, a novel attempt has been made in this research work to investigate the influence of different materials and structural parameters used in the production of weft knitted double layered interlock fabrics with inlay yarn, on various aspects of comfort properties for active and sportswear application. The objective of this research work is to develop various samples of weft knitted Interlock fabrics with inlay which will deliver good comfort properties for active and sportswear. For conducting the research work multi layered interlock fabrics with varied fibre and yarn combinations with Cotton, Polyester and Viscose has been produced. Also, the multi layered jersey fabrics with varied parameters of fabric structure and connecting yarn stitch density has been developed for the study. The influence of yarn linear density, inlay yarn parameters, fibre nature and derivative structure of interlock on air permeability, moisture management and thermal conductivity of weft knitted interlock fabrics has been investigated. The aim of this research work is an attempt to investigate the developed weft knitted interlock fabrics for comfort properties to suit for active and sportswear application..

Keywords: *Interlock fabric, comfort properties, linear density, air permeability, thermal conductivity*

TT011

REDUCTION IN TDS OF DYEING EFFLUENTS IN DYEING COTTON AND LYOCELL USING BI & POLY FUNCTIONAL REACTIVE DYES

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Abstract

Cotton is a natural vegetable fiber with great economic importance as a raw material for clothing . Cotton's strength, absorbency, and capacity to be washed and dyed also make it adaptable to a considerable variety of textile products.. Fabrics produced from Lyocell are breathable and moisture absorbent and have high dimensional stability. Lyocell fabric distinguishes them by the specific property to fibrillate in wet state under impact of external mechanical effects. Reactive dyes are only textile colorants designed to have covalent bonding with the cellulose material. The reactive dyes are becoming significantly popular for dyeing cellulose fiber, because of their wide range, ease of application. Reactive dye is classified into Mono, Bi and Poly functional reactive dyes. The mono functional reactive dyes have some disadvantage such as less exhaustion, low fixation, hydrolyzation during dyeing and it causes to increase the total dissolved salt (TDS) . Poly functional reactive dyes are manufactured to overcome these disadvantages and these Polyfunctional reactive dyes provide a promising trend in the dye industry.Polyfunctional Reactive Dyes shows many advantages namely better yield, low salt requirement for dyeing and posses higher exhaust value, improved leveling and excellent fastness properties. These Dyes are also used in single color dyeing especially for pale, medium and dark shades.In this research work a detailed investigation is done to study the dyeing behavior of Poly functional dyes under different conditions and this literature deals with the peculiar properties of these dyes and their environmental aspects as compared to conventional reactive dyes .The research work also has been done with the objective of optimizing the dyeing parameters for dyeing Cotton and Lyocell knitted fabric with Bi-Functional and Poly Functional Reactive dyes and to compare the dye strength of the dyed material by analyzing the fastness properties

Keywords: *Reactive dye, Bi and Poly functional reactive dye, Lyocell, Fastness properties, Total dissolved salts.*

TT012

ENZYMATIC EXTRACTION OF NATURAL DYE FROM *LAWSONIA INERMIS* AND ITS APPLICATION ON SILK FILAMENT

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Abstract

Extraction and application of natural dyes is of high requirement due to the awareness of health and sustainability. *Lawsoni inermis* is a herb used for coloration of human hair and also used as temporary tattoo in most of the South Asian countries. This project discusses about the application of the extracted colorant on silk filament yarns. The extraction of the dye from Henna plant is by using enzymes and normal extraction method. To enhance the dyeability and also to obtain variation in colour natural mordants like tannic acid, citic acid and myrobalan were treated on the silk yarn at different stages like pre modanting, simultaneous mordanting and post mordanting.The silk yarn was dyed in both enzymatic extracted dye and normal extracted dye. The result shows that there is a very good uptake of enzyme extracted dye than the normal extracted colour

.***Keywords:*** *Lawsonia Inermis, silk,, mordant*

TT013

STUDY ON EFFICACY OF SUTURES COATED WITH MINERALS

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Abstract

Sutures remain the most common method for closing surgical wounds. Surgical braided silk sutures have been widely used because these materials exhibit good handling characteristics ease of use and ideal knot security. Suture security is the ability of knot and suture material to maintain tissue approximation during the healing process without slippage. In this study the Tasar and Mori silk sutures were braided using circular braiding machine. The braided silk sutures were coated with Kaolin, Kaolinite and Bentonite minerals. These minerals were coated on the braided silk sutures by dip coating technique. The inherent properties like anti-microbial activity and mechanical properties such as tensile strength and knot strength were studied. Tasar and Mori Silk coated with Bentonite mineral is having high tensile strength. The antimicrobial activity of the silk sutures was studied by using the Agar diffusion Method. The mineral coated silk sutures were tested with antibacterial agents of Escherichia Coli (gram negative bacteria) and Staphylococcus aureus (gram positive bacteria). The kaolinite is having more antimicrobial activity against Staphylococcus aureus. The bentonite is having more antimicrobial activity against Escherichia Coli.

Keywords: *Sutures,, Kaolin, Silk, Bentonite*

TT014

VARIOUS DEVELOPMENTS IN HEMORRHAGE CONTROL WOUND DRESSINGS

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Abstract

Hemorrhage is defined as an escape of blood from a ruptured blood vessel. Hemostasis is the body's response to bleeding. During hemostasis the body consults components in the blood to form a clot and prevent blood from leaving blood vessel. In minor cases, the body is able to restrict blood vessel and limit blood loss. However, on larger scale body has a slower response due to shock or stress. Hence alternate action is needed to close the wound sight and to prevent blood loss. There are many wound-care products available including simple protective layers, hydrogels, metal ion-impregnated dressings and artificial skin substitutes, which facilitate surface closure. In this paper the various biopolymers for blood clotting is discussed.

Key words: *Hemorrhage,hydrogels,biopolymers,blood clot,hemostatis, dressing polymers and fibres.*

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KNOWLEDGE
CHARACTER
TRANSFORMATION

Character is Life

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