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International Conference of Advance Research and Innovation (ICARI-2018)

Aim

International Conference of Advance Research and Innovation (ICARI-2018) is a premier international conference which aims at current challenges in science and technological advancements with research updates and innovations which is shaping the future of mankind. This conference welcomes all scientists, engineers, technocrats and researchers from all walks of society to share their knowledge and wisdom for exploring solution of current and future challenges. This platform provides an international forum for researchers to exchange of ideas in recent advances on various aspects of theories, analysis, experimentation and computational methods in science, technology and management etc.

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Venue: Delhi State Centre, Institution of Engineers (India), (Engineers Bhawan), 2, Bahadur Shah Zafar Marg, New Delhi-110002, India

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Message from Editor Desk

Dear Colleagues

ICARI-2018 is 5th International Conference Organized by International Journal of Advance Research and Innovation (www.ijari.org). It gives me immense pleasure that ICARI-2018 has been graced with the presence of **Shri. Chander Mohan**, **Scientist G**, Head of Scientific Division (HoD, SEED, KIRAN, and Mission Societal), Department of Science and Technology (Delhi-16), Government of India. He encouraged, motivated and energized with current trends of research projects with great enthusiasm. ICARI -2018 team thanks for his valuable academic and research support.

ICARI-2018 received an overwhelming and enthusiastic response from students, researchers and faculty and experts from reputed organizations and industries foe sharing the pearls of their skill, experience, knowledge and wisdom. Papers from more than seven countries were received and the book of Abstract with ISBN was prepared and distributed as conference proceedings. Papers from respective authors were presented in .ppt form, from India and abroad.

ICARI-2018 ishighly thankful to **Dr. Rajeev Sharma (Scientist D, DST), Dr. AK Mandal (HoD Pathology/Director Safdar Jung Hospital, Delhi), DS Gill-Chairman IE (India), Dr. HC Lim (Professor, PNU, South Korea)** and **DN Pal (**Associate Vice President at PL Engineering Ltd**)**were our **Keynote Speakers**and **Guest of Honors**and grace the occasion on 28th January 2018 with their experience, skill and knowledge from different field and areas.

Faculties from DTU, Dr. A Mandal, Scientist C-UGC, Dr. RS Misra, Dr. RC Singh, Dr. Rajeev Chaudhary, Dr. Ranganath MS, Dr. Nand Kumar, Dr. Archana Singh, Ms Parinita Sinha, Dr. Vikas Gupta, RL Meenaetc. and students of DTU add the value in the successful complication of the event. Researchers, academicians, Scientists, Engineers, Technocrats from premier institutes and universities gathered on this grand event to exchange ideas and innovations from all corners of India and abroad.

Webelievethat ICARI-2018 will prove to be very beneficial, enriching and fruitful and also open new fronts and vistas for future research and innovation.

Team ICARI
(www.ijari.org)

Content

Page No.

ICARI-AS-18-01-01

Effect of Fertilizer Consumption on Agricultural Productivity in Ethiopia: ARDL Approach

Aynalem Shita, Nand Kumar, Seema Singh
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Abstract: This paper investigates the impact of fertilizer consumption on agricultural productivity by using Autoregressive Distributed Lag (ARDL) approach for the period of 1990-2016. The results based on the bounds testing procedure and the estimated coefficient of error correction term indicates the existence of long-run relationship among the variables. The study revealed that fertilizer consumption affects agricultural productivity positively and significantly both in the long-run and in the short-run. Moreover, other variables included in the model such as real GDP and area of arable land affects agricultural productivity significantly and positively in the long-run. In the short run, while the effect of real GDP is found to be positive, it is estimated to be negative for area of arable land. The speed of adjustment in the error correction term is found to be 0.54.
Keywords: Agricultural Productivity, Fertilizer Consumption, ARDL.

ICARI-AS-18-01-02

Strategic environment assessment: a new paradigm in impact assessment approaches

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Abstract: Environment Impact Assessment (EIA) is a legal compulsion to obtain 'clearance' of the project. In this process public, which will be immediately affected, is given a hand in clearing the projects. The authority that plans the project is not involved in the process of EIA & it only concerns with the final statement of EIA. This kind of assessment deals only with the 'project', so it's geographical boundary and the affected population is 'limited'. 'Project-specific' Environment Impact Assessment can nearly never control sector and macro-economic policies and 'strategic decision making'. Environment Impact Assessment in its present form is not an efficient means for evaluating the 'cumulative' impact of policy, program and projects. This technique is also not appropriate for scrutinizing 'alternative' design or sitting proposals.
Several institutions in different countries across globe have struggled with these shortcomings of EIA over around last two decade or so, and come up with different strategies. The foremost emerging solutions till now have been surrounded in the notion of 'Strategic Environmental Assessment' (SEA). Nowadays, this concept is considered to be the most established term for any analysis of environmental impacts caused by change in policies, or legal and institutional changes, or investment activity.This study is an attempt to explore the various types of environment assessments, concept of SEA, its applicability at various decision levels and process involved in conducting SEA.
Keywords: Accession, Germination, Lentil, NaCl, Screening, Seedling stage.

ICARI-AS-18-01-03

Risk Level of Viet Nam Medicine Industry under Financial Leverage during and After the Global Crisis 2009-2011

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Abstract: This study evaluates the impacts of external financing on market risk for the listed firms in the Vietnam medicine industry, esp. during and after the financial crisis 2009-2011. Firstapproach by using quantitative and analytical methods to estimate asset and equity beta of total 6 listed companies in Viet Nam medicine industry with a proper traditional model, we found out that the beta values, in general, for many institutions are acceptable.
Secondly, under 3 different scenarios of changing leverage (in 2011 financial reports, 30% up and 20% down), we recognized that the risk level, measured by equity and asset beta mean, decreases when leverage increases to 30% but increases more if leverage decreases down to 20%.
Thirdly, by changing leverage in 3 scenarios, we recognized the dispersion of risk level, measured by equity beta var, keeping the same value of 0,711 if the leverage increases to 30% or if leverage decreases to 20%. But the dispersion measured by asset beta var increases to 0,200 (leverage down 20%), showing leverage impact.Finally, this paper provides some outcomes that could provide companies and government more evidence in establishing their policies in governance.
Keywords: Equity Beta, Financial Structure, Financial Crisis, Risk, External Financing, Medicine Industry.

ICARI-AS-18-01-04

Total Quality Management and Organizational Performance

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Abstract: Total Quality Management is a dynamic and multi-dimensional concept that refers not only to the mission and goals of an organization, but also works to fulfill the specific standards of the system, facility, program or event. It is considered a very important factor for the long-term success of an organization. TQM focuses on continuous process improvement within organizations to provide superior customer value and meet customer needs. The quality and the satisfaction of the employees for increasing productivity, their motivation and rewarding, the use of performance evaluation and performance measurement techniques, elimination of errors and mistakes in the organization, concentrating on team work, benefitting from the experience of successful organizations, making the strategic planning and such like targets underline at the sense of TQM. Under TQM, emphasizing the quality of the product or service predominates. TQM expands beyond statistical process control to embrace a wider scope of management activities of how we manage people and organizations by focusing on the entire process, not just simple measurements. TQM as the synthesis of the organizational, technical and cultural elements of a company.
Keywords: TQM, Strategic Planning, Productivity, Technical and Cultural Elementsetc.

ICARI-AS-18-01-05

Formulation of finger millet cookies & studies on Nutritional and sensory attributes

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Abstract: The study designed to carry out to formulate calcium and iron enriched cookies .The objective of this research was to prepare the nutritionally enriched cookies developed by incorporating ragi. Chemical composition of finger millet revealed that total carbohydrate content of finger millet has been reported to be 73.3mg/100 gm of product. Finger millet has nearly 6.2mg/100 gm of protein. Total ash content is higher in finger millet than in commonly consumed cereal grains. The ash content has been found to be nearly 1.5mg/100 gm in finger millet. Calcium content of ragi was found to be 320 mg/100g, Finger millet is the richest source of calcium and iron. Iron content was 3.8±0.1mg/100 gm of ragi.Calcium deficiency leading to bone and teeth disorder, iron deficiency leading to anemia can be overcome by introducing finger millet in our daily diet. The recipe for iron enriched cookies was standardized on the basis of sensory evaluation study .It was observed that cookies prepared with 30% of ragi was highly acceptable. The iron and calcium content was found to be 9.5± 0.1&152 ± 0.1mg/100 gm of product. The use of 30% of ragi in the preparation of cookies is useful strategy to optimize the consumption of food rich in functional ingredients.
Keywords: Chemical composition, cookies, sensory quality, calcium deficiency.

ICARI-AS-18-01-06

Sacred Space - Healing islands of Urban Conglomeration

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Abstract: Indian architecture has always been guided and shaped by its culture and traditions. Spaces reflect the traditions through the user and their activities. 'Sacred' has been linked in tremendously strong manner with widening its horizons from traditions to modernity. Sacred Groves as a concept is an ancient way to protect, preserve and value the mythology to give a sustainable future. People have strong attachments to sacred trees, gathering in their shade, socializing and developing economic spaces under them. Is sacred linked to any one single entity or one category of architecture?

Sacred space is a healing sphere that is pure, holy and safe, allows us to enter our quiet inner world, where healing takes place. Sacred space has shaped and provided deep meaning to cities and urban communities. Due to tremendous growth in urban cities, culture, traditions and values of city gets diverse. Sacred space could even be an area where a person often finds peace and the religion in work. The daily routine and regime become a part of worship. Across the culture and throughout time, people have designated sacred trees and groves as special places to meditate. Sacredness are conveyed through location, symbolism, and through the social process of creating such sites eg - Vrindavan, Nathdwara.

Sensitivity to issues for Architecture and Urban Planners require more research and education to understand and evolve. This could be layered with social, cultural, common linkages to add more meaning and depth. The sacred can be personal, valuable in the perception of an individual or a group following tradition. The sacred space needs to achieve harmony in the multiplicity of voices found in the public. As policy makers and decision makers increasingly think of parks as green infrastructure, we much appreciate that these spaces have layered social and historic meanings.
Keywords: Sacred space, Landscape, Urban spaces, Sensitivity.

ICARI-AS-18-01-07

Determinants of Women's Participation in Decision Making on Household Income: Case Study of Debre Tabor Town, Ethiopia

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Abstract: In most societies, females are regarded as the inferior of the species. In the African context, traditional beliefs and cultural attitudes regarding the role and status of women in society are still difficult. Despite women's education and entry into the job market, the woman's role is typically of homemaker. Women are expected to perform duties as wife and mother, in addition to fulfilling their professional responsibilities. Hence Decision making on household income is difficult for women in developing countries. The main objectiveof the study is to identify major socioeconomic determinants of women's participation in decision making in the house hold income in Debre Tabor Town. To achieve the objective, primary data were collected from as sample of 403 married women respondents. Multi-collinearity problem of the variable were checked by using pairwise correlation test and goodness of fit of the model were tested by using sensitivity and classification test that shows there is no multi-collinearity problem and the model is fitted. Robust regression used to avide the problem of Hetro-schedasticity if any. Data is regressed by using binary logit model. The estimated logit model found that age, education level, cultural attitude of society, women's availability of saving account and source of annual income are positively and significantly affect the participation of women in decision making on household income. Whereas, time spent on household work affects negatively and significantly.
Keywords: Women, Decision Making, Ethiopia, Logic model.

ICARI-AS-18-01-08

Identification of Factors that can create user Friendly Environment in Handicraft Museums

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Abstract: India is a storehouse of art, paintings, crafts appeared on pots found in the Indus valley civilization as early as the 3rd century B.C. The cave paintings of Ajanta and Ellora date back to the 1st to 5th century A.D. The British setup the Archaeological survey of India in the 19th century to document the wealth of material available in the country. Viewing Indian art and culture as an Integral part of the Century's Heritage. The term craft galleries is used for both public galleries, which are non-profit or publicly owned museums that display selected collections of art. On the other hand Private galleries refers to the commercial enterprises for the sale of art. However, both types of gallery may host traveling exhibits or temporary exhibitions including art borrowed from elsewhere.

Handicraft, sometimes more precisely expressed as artisanal handicraft or handmade, is any of a wide variety of types of work where useful and decorative objects are made completely by hand or by using only simple tools. In this research paper findings are to be discussed for recreational spaces implication for handicraft museums are identified, Also recommendation for recreational activities are provided. This research Analysis how handicraft museum has been used as recreational purposes & developed as a recreational space in particular place. Visitors hold a lot of importance; makes the space exciting, their presence not only enhances the festive environment but also encourages the craftsmen displaying the work. Examine the socio-cultural, technological changes, visitor's footfall & planning issues in handicraft museum. The Indian craftwork, landscape areas, food courts, daily based activity areas is being utilized by the handicraft museums as a resource for attracting tourist & investment and for promoting and preserving the Indian craft.
Keywords: Handicrafts, Recreational spaces, Art & Craft, Museums, Exhibition spaces.

ICARI-AS-18-01-09

Preservative Effect of Proteolytic Enzymes on Cane Molasses Storage

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Abstract: Molasses is an intermediate product obtained during sugar process. Usually, it has more than 85^0 Brix i.e. only 15% moisture. It contains more than 45% fermentable sugars. Basis composition, it is impossible to microorganism which could survive in this environment for too long. But microorganisms like *Lactobacillus spp*. and Gram –ve Coccobacilli possibly *Pseudomonas spp.* are able to survive in this medium and deteriorate the molasses. Therefore molasses preservation requires specific solutions which can stop deterioration and maintain total reducing sugar (TRS) value in molasses to produce alcohol. Therefore, two groups of proteolytic enzymes were developed which prevents the deterioration of molasses by preventing the microbial growth at 20ppm but also preserve the 3 – 5% of TRS content during storage of molasses up to six months or till application continued..
Keywords: Molasses, Proteolytic enzymes, Lactobacillus, Fermentation, Total reducing sugar etc.

ICARI-AS-18-01-10

Application of Enzydex during Sugar Process for Improving Sugar Yield

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Abstract: Dextrans are undesirable compounds, synthesized by *Leuconostocmesenteroide* from sucrose, increasing the viscosity of the sugar flow and reducing industrial recovery, resulting significant losses to the sugar industries. The use of dextranase enzyme is the most efficient method for hydrolyzing the dextrans at sugar mills. A preparation of dextranase enzyme namely “Enzydex” developed by Catalysts Biotechnologies Pvt. Ltd which was shown significant reduction at very low concentration 3-5ppm during six plant trials in India and in Philippines. During plant trials, the 38-78% dextran reductions were observed at various stages of sugar process
Keywords: Dextran, Leuconostocmesenteroide, Dextranaseetc.

ICARI-AS-18-01-11

Effect of Fertilizer Consumption on Agricultural Productivity in Ethiopia: ARDL Approach

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Abstract: This paper investigates the impact of fertilizer consumption on agricultural productivity by using Autoregressive Distributed Lag (ARDL) approach for the period of 1990-2016. The results based on the bounds testing procedure and the estimated coefficient of error correction term indicates the existence of long-run relationship among the variables. The study revealed that fertilizer consumption affects agricultural productivity positively and significantly both in the long-run and in the short-run. Moreover, other variables included in the model such as real GDP and area of arable land affects agricultural productivity significantly and positively in the long-run. In the short run, while the effect of real GDP is found to be positive, it is estimated to be negative for area of arable land. The speed of adjustment in the error correction term is found to be 0.54.
Keywords: Agricultural Productivity, Fertilizer Consumption, ARDL.

ICARI-AS-18-01-12

Information Literacy: A March in the direction of Effective Learning

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Abstract: The growth and development of a country is found to be directly associated with the skills developed of its people. In recent times, the plans and policies have been formulated for the development of skills, which has assumed more importance, because of its emerging importance in professional as well as several other fields of life. The pace of change with which old Knowledge is being replaced by new one by updating, it has become inevitable to adopt some new system to address the situation. Adopting Information Literacy can be also one such way to make the learning effective. It imparts the ability about knowing, when the information is needed and to identify, locate, evaluate, and effectively use it for the problem at hand. The Concept of Information literacy was first introduced in 1974 in USA, in the area of Libraries and Information Science, describing the importance of it and making a distinction between "literates" and "information illiterates, a new classification evolved based on the significance of the concept. It explains that how the techniques as well as skills learned by the information literate people take to information solutions, for their problems by utilizing the wide range of information tools and primary sources of importance. However, the Information illiterate people lack this type of capabilities, by which the distinction of Information Literacy can be easily underlined. In this paper, an effort has been made underlining the importance of the Information Literacy, with respect to a developing country like India.
Keywords: Information Literacy, Skills, Learning, Information Illiterates.

ICARI-CS-18-01-01

In Container Integration Testing Frame Work

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Abstract: In Container Integration testing framework is a combination of four open source technologies. Arquillian, TestNG, JaCoCo, and Maven. The aim of this work is to deals with automating the code using JaCoCo. JaCoCo is a Java framework calculates code coverage. It find's the amount of code coverage in each lines of module that has been executed or missed and finally it will be deploy to wild fly server in the user matrix project source container. The main idea behind developing in this automation testing framework is able to test server side components developed using Java. The tests will be such that they will run in the container/application server (e.g. Wild Fly) where the server side component (e.g. test1) is deployed and because of that the tests will be able to use all the real resources (e.g. EJB etc.) provided by the container instead of mocking them.[1]Web Service Description Language (WSDL) specification, we first automatically generate necessary Java code to implement a client. We then leverage automated unit test generation tools for Java to generate unit tests, and execute the generated unit tests, which in turn invoke the service under test. The next important objective is to calculate amount of code covered by the test cases.
Keywords: Integration Testing, Automation Testing, Java Framework, Unit Tests.

ICARI-CS-18-01-02

A Traffic monitoring approach to track vehicles using object segmentation and feature detection

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Abstract: We now accept the fact that learning is a lifelong process of keeping abreast of change. And the most pressing task is to teach people how to learn. The term "learning environment" suggests place and space – a school, a classroom, a library. And indeed, much 21st century learning takes place in physical locations like these. But in today's interconnected and technology-driven world, a learning environment can be virtual, online, and remote; in other words, it doesn't have to be a place at all. Perhaps a better way to think of 21st century learning environments is as the support systems that organize the condition in which humans learn best – systems that accommodate .Experts say 21st century learning must take place in contexts that "promote interaction and a sense of community [that] enable formal and informal learning." Informal learning means up gradation of human ware. Need to develop attitude through skill monitoring.
Keywords: Traffic monitoring, Object segmentation, feature detection, etc.

ICARI-CS-18-01-03

Colored Petri net based techniques for constructing reliable web service composition

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Abstract: In today's scenario, there are many web services around the web. This service has its own limited functionality. A single service cannot satisfy the users' requests, so we need to combine these services in a set of services. Web service composition uses certain standard protocol to provide these services such as UDDI, SOAP, and WSDL. Reliability of composite web service which is an important aspect. The analysis of reliability in this scenario is not an easy task. In this paper we have proposed a model named Colored Petri net based Reliability in Composite Web Service (CPN-RCWS). Using this model we compared the reliability under different state of recovery mechanism.
Keywords: Web Service, Web Service Composition (WSC), Advanced Object-Oriented Petri Net (AOOPN), Coloured Petri Net (CPN), Universal, Description, Discovery, and Integration (UDDI).

ICARI-CS-18-01-04

Improving VANET Security through Position and Speed Verification

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Abstract: In the present technological scenario recent vehicles (especially cars) are well equipped with latest technologies and the prediction is that the future cars will be smarter and fully controlled by software's. In this continuation, the innovations by manufactures as well as the researchers have added a new paradigm as Vehicular Adhoc Networks (VANETs) for safe and secure driving. VANETs are the networks that are formed by equipping vehicles with wireless supporting devices and corresponding standards. It smooths the progress of communication among the vehicles and interfaces with communication points installed as road side infrastructure. In such intelligent transport systems the information sharing amongst vehicles and road side units is based on wireless communications where there is a possibility of fake information or inappropriate forwarding of information done by malicious vehicles. We focus on such security issues and try to detect malicious nodes propagating incorrect position information. The approach will incorporate the different parameters to verify the authenticity of vehicles as well as the information propagated by it based on safety packet information.
Keywords: Speed verification, VANET, communication.

ICARI-CS-18-01-05

A detailed study on the effect of education and income inequality on Preston Curve

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Abstract: The Preston curve is an empirical cross-sectional relationship between life expectancy and real per capita income, and has long served as the foundation of global health policy. However, there are many limitations to the original Preston cure per say reverse causality. We have made an effort to strengthen the Preston curve by bolstering it with additional features such as education, income inequality and health. Our research involves incorporating latest data set from World Bank, and conducting analysis on it through various regression techniques. By adding additional features the Preston Curve becomes more accurate in predicting the life expectancy of a particular geographical area and thus the curve can be reliably used. The outcome of our research is substantial and we hypothesize that these changes made to the Preston Curve will update its validity and improve its accuracy.

Keywords: Preston curve, life expectancy, per capita income.

ICARI-CS-18-01-06

Hashtag Investor– Perception Analysis With Relation To Geographical Location in Twitter

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Abstract: Hashtag investor is a system that can analyze twitter data to generate useful information including some predictions. Machine learning techniques have been used for this research which falls into data mining to archive sentiment analysis to categorize and identify tweets based on the contents. Twitter has an enormous collection of data. If these data is converted into some useful information, accurate decisions can be made using this data. That is our main objective, which can be very helpful to users, and this system works with respect to four specific objectives. One objective is sentimental analysis of twitter data and finding false tweets. Supervised learning has been used and NLTK and also the naïve Bayes classifier has been used as techniques. The output will be display percentage wise, negative positive and neutral percentages of the given keyword. Twitter data is analyzed according to the given keyword. False tweets identification is done by analyzing user profile. If the user profile criteria does not match with our assumptions this profile is marked as a fake profile. Second objective is comparing two similar products and getting the popularity according to the time. The output is displayed by charts. Similar keywords will be grouped. Clustering algorithms has been used for grouping. Our forth objective is finding some latest ongoing events and the number of users who were active at certain time periods, ARIMA model has been used as the technique. Our final objective is to analyze retweets comments and tweets on particular two products. Output is displayed as a graph. Propagation topology is used as the technique for retweet analysis and exponential regression function is used for popularity prediction.

Keywords: Twitter; Sentimental analysis; machine learning; Clustering; Graph mining; Data mining.

ICARI-CS-18-01-06

Big Data Integration and Analytics for Cyber Security to Mitigate Cyber Attacks

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Abstract: Big data is changing the landscape of security tools for network monitoring, security information and event management, and forensics; however, in the eternal arms race of attack and defense, security researchers must keep exploring novel ways to mitigate and contain sophisticated attackers. Cyberspace is an interactive domain made up of digital networks that is used to store, modify and communicate information. It includes the internet, the other information systems that support businesses and government services. Cyber-attacks comprise advanced and sophisticated techniques to infiltrate government, consumer and enterprise systems and networks. The major types of cyber-attacks include advanced malware, zero day attacks and advanced persistent threats. Advance warning about attackers and intelligence about the threat landscape has been considered as essential features in security technologies in cyber space. Big data analytics in security involves the ability to gather massive amounts of digital information to analyze, visualize and draw insights that can make it possible to predict and stop cyber-attacks.

Keywords: Big Data architecture, phishing characterization, Network monitoring, Computer crime, Security of data.

ICARI-CS-18-01-07

Machine Learning and Data Mining Methods in Diabetes Research

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Abstract: The remarkable advances in biotechnology and health sciences have led to a significant production of data, such as high throughput genetic data and clinical information, generated from large Electronic Health Records (EHRs). To this end, application of machine learning and data mining methods in biosciences is presently, more than ever before, vital and indispensable in efforts to transform intelligently all available information into valuable knowledge. Diabetes mellitus (DM) is defined as a group of metabolic disorders exerting significant pressure on human health worldwide. Extensive research in all aspects of diabetes (diagnosis, etiopathophysiology, therapy, etc.) has led to the generation of huge amounts of data. The aim of the present study is to conduct a systematic review of the applications of machine learning, data mining techniques and tools in the field of diabetes research with respect to a) Prediction and Diagnosis, b) Diabetic Complications, c) Genetic Background and Environment, and e) Health Care and Management with the first category appearing to be the most popular.
In the modern era, the technology and life science can be jointly applied innovatively to resolve many problems. Cyber Physical System can be used to resolve the problem of controlling Diabetes. Newly evolving technology CPS controls/monitors physical system by computer-based algorithms. In Cyber Physical Systems, physical and software components interacts tightly to sense the data and take any control action. Diabetes is a global issue. Many international organizations are undergoing research in diabetes. The International Diabetes Federations engaged in action to tackle diabetes from the local to the global level - from programmes at community level to worldwide awareness and advocacy initiatives.
Keywords: Machine learning, Data mining, Diabetes mellitus, Diabetic complications, Disease prediction models.

ICARI-DE-18-01-01

Development of a Process and Standardization of Parameters for the Manufacture of Kheer

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Abstract: Kheer is a cereal based Traditional Indian Dairy Product. It is very popular all over the India. The processing or manufacturing of the kheer in different region is done by different method and the ingredients used in the kheer having different proportions. The present investigation deal with the standardization of the methodology for processing of the kheer and selection of different types of ingredients used in kheer at different level. The parameters were standardized based on sensory evaluation of kheer based on 9 point hedonic scale by panel of judges. Basmati with long grain gave proper cooking, consistency as well as aesthetic as compared to Gujarat-17. The standardized pasteurized milk, 2 times concentration of milk, level of rice at 7% of concentrated milk, pre-cooking of rice at 90 ^{0}C for 10 min and 12 % level of sugar were finalized for manufacture of kheer.
Keywords: Kheer, Process Development, Standardization of the parameters.

ICARI-CV-18-01-01

Assessment of Implementation of Fire Safety Procedures and Regulation in Public Buildings

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Abstract: The research assessed the level of implementation of fire safety procedures and regulations in public buildings, which employed the use of questionnaire to ask questions from a sample of 100 facility managers, 230 workers and 220 visitors from selected public buildings. Mean and standard deviation were used to analyze the data collected from the subjects. The findings of the study showed that there are available and adequate Fire Safety provisions which have satisfied their level of implementation. The study reviewed relevant literature on fire, causes of fire in public buildings, fire safety regulations, and control of fire, fire prevention and protection, assessment of fire safety, implementation of fire safety. The structured questionnaire used contained 34 items, which were divided into (4) four sections (A, B,C and D), Section A was designed to elicit information status, name, address and type of the public building, Section B was designed to elicit information on the availability of fire safety provisions in the public buildings and Section C was designed to elicit information on adequacy of fire safety provisions in public buildings while Section D was designed to elicit information on the level of implementation of the fire safety provision by the building authorities. The instrument was validated by experts of building construction in the Department of Science and Technology Education of Bayero University Kano in Nigeria. Its reliability was established using split half method by the use of Guttman split-half coefficient formula to correlate between forms with a coefficient of 0.706. The Research recommended that a permanent fire safety committee in all the public buildings should be constituted to be responsible for given out fire safety provisions guide to building users on periodic bases, Courses on fire safety should be introduced, and made compulsory for student irrespective of his/her cause of study, Fire safety training should be carried out at least annually. The study suggested that there is need for further studies on the attitude of public building users towards fire safety procedures and regulations, An investigation in to the awareness level of public building users towards implementation of Fire Safety procedures and regulations in public buildings, An assessment on the level of adequacy of fire safety equipment's in public buildings and The study on the level of satisfaction of Fire Safety provisions and training in public buildings.
Keywords: Astrophysics, Atomic Data, Plasma Diagnostics.

ICARI-CV-18-01-02

Analysis of Rigid pavement on Expansive and Collapsible Soil using Jute Waste

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Abstract: Critical concrete pavement problems have been solved out in India during the past 28 years and results have led to the environmental waste playing very important role to make road on collapsible and expansive soil. This innovation paper give result of modern construction of highway problem in urban problems and construction management for rigid pavements their universal nature, like London city Hong Kong and Singapore city.
Keywords: Concrete, pavement, construction etc.

ICARI-CV-18-01-03

Time Reduction Techniques and Management in Construction of High Rise Structures

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Abstract: Due to an increasingly competitive environment, construction companies are forced to be more efficient and achieve competitive operational advantage. Companies are always looking for improvements in equipment features, communication tools, efficient management techniques, and training human resources. High rise structures are buildings that have to be constructed using particular methods and techniques as various factors from the load of the building to the finishing required is quite different from other buildings. This study was limited to one of the widely used tools and techniques of time reduction and management, which was plentifully described in the literature review. The user experience section of the research discussed limited to a few tools and techniques. In the pursuit of efficient project performance, time control is one of the most important functions. It is more crucial in high rise structures (large scale and megaprojects), where various risk variables cause schedule delays. Hence, there are numerous time management techniques and software packages used for construction of high rise buildings worldwide. Each of the techniques has different functions and process in providing a list of dates on which certain items are to be completed. A section explaining all the related techniques/methods and available software packages used for time management were in capture. The study identified the time reduction and management technique in the construction of high rise structures using a designed model that was used on an Industrialized Building System (IBS) components or products (off-site) compared with the conventional method usually adapted in-situ method. The research basically analyzed improvement involving reducing the production time, identifying and eliminating unnecessary wet works, which is can optimize production line according to a specific layout.
Keywords: Construction, Time reduction techniques, High rise structure etc.

CARI-CV-18-01-04

Adequate shelter as per human right

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Abstract: Adequate shelter is a constitutional human right, which includes shelter, drinking water and sanitation. This right is essential for meaningful life, health, dignity, empowerment and prosperity. Adequate shelter must be easily available, accessible, acceptable, safe and affordable for all without any discrimination. Although, these elements are interrelated, but accessibility and affordability is far away from achievability. While shelter may be guaranteed in constitution but in reality it is too expensive, people do not have access, as housing is too expensive. Thus, at present, this constitutional-right is a theoretical-right only. It is a major challenge, government and private institutions/organizations are active in this sector with nebulous responsibilities and accountabilities; if there is any inability/inefficiency the sufferer is end-user.Housing is related to public money, so everyone is concern, it's their money.

This paper looks at the rights for affordable housing and its effects on realistic life. It analyzes the situation at present within the existing law and government run service-delivery system. It will also explain why it is necessary to know more about the role of different institutions/organizations on whom, the citizen could approach for solution of a specific problem in getting a good quality shelter at affordable price.

Keywords: Affordable, Housing, Rights, Shelter

ICARI-CV-18-01-05

A review on Stone Columns used for Improvement of Geotechnical Properties of Soft Soil

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Abstract: Stone columns are widely used in the field of stabilization of soft soils. Stone columns are used to improve the bearing capacity and settlement behavior of soft soils in economic costs and environment friendly also. The stone columns derive its load carrying capacity mainly from the confinement of the soil surrounding it. In this paper an attempt is made to study the behavior of stone columns used in supporting a wide variety of structures such as oil storage tanks, embankments, etc. The effect of ordinary stone columns and encased stone columns on different types of structures is studied. The effect of different diameter at different depths in ground is also reviewed. This paper dealt with the theories existed from past to present that helps in understanding the improvements made by using stone columns in improvement of soft soils.

Keywords: Stone Column, Soft Soils, Encased Stone Column etc.

ICARI-CV-18-01-06

Cement Industry and Strategies for Mitigation Carbon Emission: An overview

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Abstract: Cement is the largest mass manufactured man made product on earth. The demand for cement is on a continual rise, as more and more developing countries strive for better infrastructure. This demand has, however, entailed an unacceptable increase in the carbon emissions as the cement manufacturing industry is one of the most carbon releasing industries in the world; responsible for more than 5% of the global carbon emissions. The dangerously high levels of Carbon Dioxide have contributed to a large scale climate change which has global repercussions. The need of the hour is an effective yet inexpensive mechanism to trim down the carbon emissions from the cement factories. In this paper, the main industrial as well as the governmental strategies for alleviating the carbon emissions of the cement industry are reviewed, focusing on the carbon taxation for the latter. This review has observed a comprehensive literature in term of the peer reviewed journals, research papers, industry reports, authentic websites etc on the cement industry and the strategies to reduce the carbon emissions.
Keywords: Cement, Carbon, Strategies, Carbon tax, Industrial, Environment.

ICARI-CV-18-01-07

Sustainable Construction Techniques - A Way to Reduce to Pollution

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Abstract: Construction industries are one of the major industries in the world of which nearly half of the population depends directly or indirectly. It is the spine of all sectors and thus contributes a lot in the economy of the country. Apart from the contribution of capital it also contributes in pollution severely, with not only air pollution but water pollution, noise pollution and landfill pollution which makes the city dusty and exposing living things on the site to respiratory ill and hence causes the harmful diseases. The Construction dust classified as PM 10 pollutants - particulate matter less than 10 microns in diameter, invisible to the naked eye and has off late been recognized as one of the major sources of pollution. Construction dust is generally of different types in a construction site like silica dust created when working on material such as concrete, mortar, etc., and lower toxicity dust created when working on marble resulting cause's silicosis, asthma, chronic obstructive pulmonary diseases. The study shows sustainable building materials are materials which are domestically created and sourced which decreases transportation costs and CO2 emissions, they could consist of reused materials, they possess a lower environmental effect, they are thermally effective, they need less energy than conventional materials, they make use of renewable resources, they are lower in harmful emissions and they are economically sustainable.
Keywords: Sustainable, Building material, Pollution, Green Building, Emission.

ICARI-CV-18-01-08

E-Waste Recycling and Disposal in India (Mandoli)

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Abstract: Old PCs and hardware have made enormous heaps of electronic junk far and wide, and as the back office to the planet, India is especially troubled—Bangalore alone produces 18,000 metric huge amounts of e-waste per year, a sum which is growing 20% every year. What's more, despite a fact that India prohibited e-waste imports in 2010, a great number of tons still lands up in the nation illegally consistently. This study deals with the pollution due to improper recycling of E-waste, polluting agents involved and their harmful effects on the environment and also on humans working in this business. For thorough analysis an E-waste disposal site named Mandoli in the outskirts of National Capital Region of Delhi has been taken into attention from where different samples of water and soil have been collected for laboratory testing and the results indeed were worse than expected. Multiple standards both Indian and international have been taken into consideration.
Keywords: E waste, Recycle, Disposal etc.

ICARI-CV-18-01-09

E-Waste Recycling and Disposal in India (Mandoli)

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Abstract: Air Pollution has always been threat and a case of concern for many evolving cities. Vehicular air pollution being one of the major reasons involved in deteriorating the condition of air in rural and urban areas. Delhi, the national capital of India, is one such city where the condition of air is exacerbating with growing density of vehicles. In order to minimize the degradation vehicles must comply with the prescribed emission limits of pollutants in the air as set by the government and produce a Pollution under Control Certificate (PUC) under a period of every three months. In this study, a set of 600 vehicles have been investigated for the PUC Certificate in various sectors of Rohini area (North Delhi) through a quantitative face to face questionnaire survey. The targeted areas included petrol pumps, high end shopping malls, strip malls and residential blocks with an objective of dividing the data on the basis of intensity of surveying every type of vehicle, such as four wheelers, two wheelers, three wheelers, public transport and heavy duty vehicles. Various socio economic factors, precisely six, were examined through the survey indicating an evident relation with the degrading quality of air. The factors were related to the PUC certificate status and various models of data were formed using multiple regression analysis in the statistical software of NCSS[11] where Frequency of petrol pump visit, servicing frequency and income level were found to be strongly affecting the air quality. The efficiency of the linear model is examined by various statistical methods and by computing performance indicators, namely, Coefficient of Correlation (R) and Mean Square Error (MSE).
Keywords: PUCC, MLR, NCSS, Vehicular air pollution, Coefficient of Correlation (R), Mean Square Error (MSE), etc.

ICARI-EC-18-01-01

Brain Wave Frequency Measurement in Gamma Wave Range for Accurate and Early Detection of Depression

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Abstract: The motive of this work is to refine the method for diagnosis of depression, which in the present day is dependent majorly on psychometric sheets. The background research which is the base for the development of a proposed device is the fact that when a person's mind is in a depressive state, the brainwaves lie in the lower range of Gamma Wave Band i.e. 20Hz – 30Hz. Using this data, a device can be developed which detects brainwaves only in this range. Twenty one electrodes, which are attached to the scalp in a 10-20 international electrode system using a conductive paste, capture the electrical impulses from the brain. These impulses pass through a band pass filter to filter the noise, and reach to the 8266 Wi-Fi module. This module transfers the impulse data to the cloud, which can be accessed via the app developed. The software now analyse the impulse data, and presents the user with the frequency of the brainwaves captured by studying the data supplied, and whether the person is at the risk of depression or not. The app developed also connects the user to a psychiatrist/neurologist, anywhere in the world. This innovation is intended to supplement the already existing method of diagnosis by psychometric sheets and to contribute towards a happier tomorrow.
Keywords: Depression, Gamma waves, Frequency band, Transmitter, receiver, Electrodes, Electric impulse, Brain waves.

ICARI-ME-18-01-01

Experimental study of droplet impact on a cold surface

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Abstract: Experimental study of a droplet impingement on a cold surface has been performed with the aim of visualizing the temporal variation of droplet impact and of observing frost formation and ice adhesion on the surface. The NaCl solution was mainly used and, droplets were formed at a tip of sharp needle by using electrostatic potential. The free falling droplet was impinged on a cold flat surface and visualized using a high-speed camera and LED light. Captured images were used to measure and calculate the falling speed before the impingement on the surface. After having impingement on the surface, the droplet has a frost formation and ice adhesion, whereas the droplet in room temperature has a process of rebound, recoil and splash. Depending on the size of the droplet, we observed that the frost formation and ice adhesion was highly dependent upon the critical size of droplet yielding different Weber numbers.
Keywords:Droplet, electrostatic force, droplet impact, weber number, hydrophobic, hydrophilic, cold surface

ICARI-ME-18-01-02

Synthetic Inflow Boundary Condition based on Digital Filtering with Different Length Scales

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Abstract: Large Eddy Simulation (LES), which has recently been developed and used for turbulent flow analysis, can be applied for a variety of area. In particular, in order to achieve a faster performance, an artificial generation of inflow turbulent flow would be necessary to make the faster convergence as well as to maintain the real turbulent flow in the calculation domain. In this study, the synthetic inflow generator has been developed based on spatial and temporal correlation functions, which have a form similar to an exponential function. This inflow data obtained by the synthetic inflow generator imposed into the inlet condition of LES simulation on a channel with smooth wall. In the result, fully developed turbulent boundary layer was successfully generated in the computational domain. In addition, the variation of various length scales was taken into account to observe the effect of the inflow length scales. The results in the variation of integral length scale shows that larger length scale in inlet section has faster rate of recovery in wall shear stress, which has an implication that in order to develop the boundary layer faster, a larger length scale of inlet section would be necessary to achieve the fully developed turbulent boundary layer.
Keywords: LES, Synthetic inflow, Correlation, Length scale.

ICARI-ME-18-01-03

Modeling, Control, Optimization and Simulation of a Tailsitter UAV

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Abstract: This study presents the mathematical modeling, control design, optimization and simulation results for a flying wing tail sitter UAV. Firstly, introducing a complete mathematical model for a propeller in presence of free stream. The proposed model for thrust and moments of the propeller is then used to derive equations of motion of a tail sitter UAV. A simple linear time-invariant control strategy is developed to control attitude and position of the vehicle. In addition, an optimization problem is defined as a function of controller parameters, vehicle physical parameters such as geometry of the wing, propeller, control surfaces and the position of the motors in a frame attached to the COM of the vehicle. The objective is to find a configuration which not only leads to minimum power consumption in hover, but also leads to having the best performance in tracking a trajectory. The results are validated using nonlinear simulations in MATLAB & Simulink.
Keywords: tail sitter, UAV, propeller, free stream

ICARI-ME-18-01-04

Energy Balance of a SI Engine Vehicle using AMESIM

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Abstract: It has been a topic under immense research that the about more than 50% of fuel energy in an S.I. Engine is lost in the form of heat and friction losses. Several practical works have been carried out to determine the exact amount of energy lost in the form of heat and friction losses as it varies drastically with the speed and acceleration.[3] To find out the change in the energy used and lost for driving a vehicle with variation of speed and acceleration, various simulations are carried out in this practical work. The simulations were carried out in AMESim at 50, 100 & 200 kmph constant sped and at constant acceleration with maximum speed upto 200 kmph with vehicle model. It was well established with the results from the simulation that the drag energy increases drastically with increase in vehicle speed and friction losses decrease with increase in speed.
Keywords: SI engine, energy, friction loss

ICARI-ME-18-01-05

Experimental study of surface modification to wear characteristics of Cast Magnesium Alloy

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Abstract: Magnesium is a low- density structural material mainly used in automotive industries and at the production of lightweight objects. It is desired for the Mg alloy to be better wear resistive at the interface having relative motion with other material or fluid. The desired properties can be achieved with the employment of surface modification techniques. In the present experimental study, surface modification was performed on the cast Mg alloy plate had composition Mg-3Zn-3Sn-3Pb-2Si with the Friction Stir Processing (FSP). After FSP, samples in the form of cylindrical pins had diameter 8mm were taken from the processed and unprocessed region using wire cut for analyzing the wear behavior. Wear test was performed at a normal load of 30N, 60N & 90N on pin-on-disc apparatus as per ASTM G-99 in a dry condition at room temperature and pressure. Results exhibited low wear rate in case of the processed sample as compared to the parent material. Further, SEM images were taken for analyzing the wear mechanism involved and found that abrasive and adhesive wear was prominent.

Keywords: Magnesium, Surface modification, Friction Stir Processing, Adhesive wear, Wear rate.

ICARI-ME-18-01-06

Frequency analysis during turning operation of stainless steel

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Abstract: In the present work, frequency analysis was performed on 1-1 octave band during turning of stainless steel with different permutation and combinations. Total 16 experiments were performed by varying cutting speed, feed and depth of cut using Taguchi method. The cutting speed, feed rate and depth of cut vary from 0.5 mm- 2 mm, 0.089 mm/rev- 0.111 mm/rev and 54 rpm – 770 rpm respectively. The measured results show that the maximum sound pressure level (SPL) is 86.3 dB(A) at 1.5 mm depth of cut, 0.095 mm/rev feed rate and 770 rpm cutting speed. The frequency spectrum shows that the SPL increases from frequency 31.5 Hz to 1000 Hz and then decreases up to 8000 Hz frequency. The SPL is maximum at 1000 Hz frequency,
Keywords: Sound pressure level, Acoustic power, Taguchi method, Frequency spectrum, Cutting speed, Feed rate, Depth of cut.

ICARI-ME-18-01-07

Experimental investigation of tensile strength of PMMA/Fe_2O_3Nano composites

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Abstract: Polymethyl Methacrylate (PMMA) has high elastic strength and its elastic property is further tested by fabricating PMMA/Fe_2O_3 nanocomposites. In the present work, PMMA/Fe_2O_3nanocomposite is synthesized in three different compositions by solution casting method and designated as FP-9:1, FP-8:2 and FP-7:3. The tensile strength and modulus of elasticity of each nanocomposite is tested and compared. Particle size and distribution are characterized using Scanning Electron Microscope (SEM).
SEM image indicates that Fe_2O_3 is more reactive with PMMA but shows less interaction with PMMA due to the presence of flocculation of Fe_2O_3 particles. With increase of Fe_2O_3 in PMMA, the tensile strength and modulus of elasticity increases. The nanocomposite (FP-7:3) shows highest tensile strength and modulus of elasticity. It is also observed that the tensile strength of nanocomposites is less than PMMA.
Keywords: PMMA, Scanning Electron Microscope, Tensile strength, UTM, nanocomposite.

ICARI-ME-18-01-08

Optimization of various parameters for enhancing the performance of multi compressor refrigeration system

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Abstract: In the present study optimization has been done on multi-screw compressor system. Refrigeration Cycle requires a lot of improvements for better performance to fulfill the desired condition with high performance in multi-compression system. Many of the parts run during the cooling effect and the running condition of system may vary as per the condition like ambient condition, part load, full load etc. has also been changing which create an effect on the suction pressure, evaporator temperature, the rate of heat exchange, refrigerant flow and many other factors which are continuously changing. For efficient cooling process, the noise parameter of the system has to be analyze and it's affecting level for the designed system. These noise parameters have been controlled (minimize) by some controlled parameter. In this project, the optimization parameter is the Power and the affecting parameters are temperature, discharge pressure and slide valve positioning. The variation in these parameter with different working condition has analyze. The deviation in the effective cooling process can be obtained by its optimization. For the optimization process, taguchi approach with four factors and three level has selected which is best suitable with these conditions. This approach provides the best suited result for the different working conditions as per the requirement of the company. So, the main motive of this work is to analyze the noise parameter and provide the best suited parameters in different working conditions so that effective and efficient cooling may be provided for the organization.
Keywords: Multi compressor, Cooling effect, Evaporator temperature.

ICARI-ME-18-01-09

Collaborative Planning Forecasting and Replenishment for improving operational performance

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Abstract: Collaborative Planning Forecasting and Replenishment (CPFR) aims to enhance supply chain integration by supporting and assisting joint practices. CPFR seeks cooperative management of inventory through joint visibility and replenishment of products throughout the supply chain. Information shared between suppliers and retailers' aids in planning and satisfying customer demands through a supportive system of shared information. This allows for continuous updating of inventory and upcoming requirements, making the end-to-end supply chain process more efficient. Efficiency is created through the decrease expenditures for merchandising, inventory, logistics, and transportation across all trading partners. CPFR is a business practice that combines the intelligence of multiple trading partners in the planning and fulfillment of customer demand. The objective is to define a process linking the customer demand with resupplying needs of the whole Supply Chain; analyzing the procedures of the whole Supply Chain in order to reduce cycle time and inventories, through a collaboration between manufacturers and retailers; organizing the collaboration to enhance reliability of the forecasted demand, improve the resupplying and build common commercial plans between manufacturers and retailers; handling discrepancies and anomalies; developing information systems adapted to these new procedures. The result was an improvement of the product availability rate from 87 % to 98 %, a reduction of lead time from 21 to 11 days and consequently 40% increase in sales over the test period.
Keywords: Forecasting, Supply chain, Replenishment.

ICARI-ME-18-01-10

Role of quality in management information and performance measurement systems

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Abstract: This study uses meta-analytic procedures to examine the role played by quality practices on management information system (MIS) and performance measurement system (PMS) in Fast Moving Consumer Goods (FMCGs) factories in India. This Study is based on Survey Questionnaire filled from factory managers of Indian FMCGs factories. The questionnaires were self-administered and consist of questions related to TQM practices in factories. We have distributed 200 questionnaires, but can only be able to receive 155 from the respondents. To test the hypothesis we conducted descriptive statistics, correlation analysis and multiple regression analysis. Our meta-analysis also examines published and unpublished research studies that investigate the relationship between management information system (MIS) and performance measurement system (PMS). The findings of this meta-analysis suggest there is a weak-to-moderate relationship between management information system (MIS) and performance measurement system (PMS) relationship. Differential effects management information system (MIS) and performance measurement system (PMS) also discussed.
Keywords: Quality Management, Management information system, Performance measurement system.

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Design, Modification & Analysis of Industrial Air Compressor (Type: Vt4) – A Review

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Abstract: This paper presents a review on how important the intercooling of air compressor is necessary for an efficient process. Basically the meaning of air compression is to reduce a specified volume, resulting in an increase in pressure. For improving efficiency of the system compression is done in more than one stage and between each stage intercooler is provided. Intercooler improves the quality of air and reduces inlet air temperature. The function of the intercooler is to cool the air as it leaves the Low Pressure cylinder and before it enters the High Pressure cylinder. This improves the efficiency of the compressor and ensures that the temperature of the air receiver outlet valves is just right for optimum operation of the tools connected to the compressor. The cooler is composed of sheet metal plate elements or tabular core. Type VT4 compressor is a Two Stage Reciprocating Air Compressors which is most widely used for Industrial Purpose. This paper highlights the various efforts of the various researchers. On the basis of various researches it is proposed that the change in size of intercooler will avoid heating in High Pressure Cylinder during long run.
Keywords: Air Compressor, Efficiency of the system compression, Intercooler.

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Enhancing the speed of inspection in coordinate measuring machine using genetic algorithm

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Abstract: Due to high accuracy and precision, coordinate measuring machine (CMM) has been an important tool of inspection in quality control for several years. Effectiveness of inspection greatly depends on measurement cycle time. Lesser the inspection time taken by CMM to measure a given part better will be the performance of inspection process. Therefore, for efficient performance of inspection process, it is critical to reduce measurement time. Goal of our research is to improve measurement accuracy and reduce the cycle time of inspection. There are various methods to generate most suitable measurement path which will result in minimum inspection time. These methods are based on different algorithms to reduce measurement cycle time for CMM. Genetic algorithm, which is one of the optimization techniques can be used to find the minimum cycle path and hence can be used to increase the speed of inspection.
Keywords: Coordinate measuring machine (CMM), Measurement, Inspection, Genetic algorithm (GA).

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Role of reverse logistics in circular economy

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Abstract: Circular economy is currently one of the most discussed terms among the propagators and supporters of sustainability. Circular economy enhances the boundaries of environmental sustainability by highlighting the idea of developing products in such a way that they balance environmental system and economic growth together. Therefore, circular economy is not just concerned with the reducing the impact of hazard materials on environment but rather with the formation of self-sustaining production systems with reuse of raw materials, components, and products respectively. The focus of the circular economy is the "restorative use" of resources such as reuse, recycle, remanufacture of materials, components, products from returned or end of life products. To achieve the intent of circular economy, reverse logistics can play a crucial role. While most of the businesses are focused on linear supply chain, reverse logistics make them circular. Returned products are collected through acquisition by retailers, or manufacturers, or by the third-party collectors. The products are segregated into different categories and sorted out after the inspection. The returned products are disposition either for reuse, remanufacture, or recycling. Next action is taken depending on the disposition decision. Remanufactured products are redistributed through forward logistics which forms a close loop supply chain. The recycled material is reused as of new material. Thus, all of these options form the circular chain of the materials which can make significant contribution to the circular economy.
Keywords: Circular economy, Environmental sustainability, Reverse logistics.

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A framework for the performance evaluation of Indian retail sector

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Abstract: This paper aims to introduce the concept of performance measurement from a basic level understandable to even a beginner and move on to the different aspects of performance measurement- its various features and its importance in this world of cut throat competition and shortage of resources in detail. Performance measurement in the retail sector has been highlighted as probably no other sector requires performance measurement as much to increase profitability and the overall value of a company or organization. Examples are provided wherever the need arises, Performance management tools and Business Scorecard and its characteristics are also included. Various KPIs have been introduced in this report to achieve the desired results. On the basis of the information obtained through surveys KPIs have been accommodated to the balanced score card frame work. The balanced score card frame work puts up a practical approach to measure performance of a supply chain in retail sector. The frame work has been presented considering the general perspective of Kaplan theory and relating to Indian retail sector. This frame work can be put to use to benchmark the performance of various organization in retail sector at competitive and absolute level.
Keywords: Retail sector, Kaplan theory, Performance measurement.

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Simulation of Polymer/Carbon Nanotube Composites from Molecular Dynamics Approach: Review

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Abstract: Carbon Nanotubes, CNTs have gained very much research interest because of their exceptional properties like high electrical and thermal conductivity, high stiffness against bending and high tensile strength. By using CNTs as nano fibers, the mechanical, electrical, thermal and optical properties of composites can be enhanced. Because of difficulties in conducting experiments for the study of CNT-polymer interface, molecular dynamics simulations are becoming very common to investigate the reinforcing mechanism of CNT/polymer composites. Molecular Dynamics is a computer simulation technique in which time evolution of a set of interacting atoms is followed by integrating their equations of motion. In Molecular Dynamics, laws of classical mechanics are followed and more specifically Newton's 2nd law, which can be calculated by the double derivation of atom's coordinates with time. In molecular dynamics, physical properties are generally function of particle's position and velocity. The properties which we analyse in molecular dynamics are kinetic energy, potential energy, temperature, radial distribution function, mean square displacement and pressure. In Molecular Dynamics, Simulations are performed with different ensembles like Micro canonical Ensemble (NVE), where the system is isolated from changes in moles (N), Volume (V) and Energy (E). Canonical Ensemble (NVT) is also used where the number of moles, volume and temperature are conserved. In an isothermal isobaric ensemble (NPT), number of moles, pressure and temperature are conserved. In molecular modelling, a force field (special case of energy function or interatomic potential) is an important parameter used to calculate the potential energy of a system of atoms. Some of the common force fields are AMBER (Assisted Model Building and Energy Refinement), COMPASS (Condensed-phase Optimized Molecular Potentials for Atomistic Simulation Studies) and CHARMM (Chemistry at Harvard Molecular Mechanics). At the age of advanced materials, the MD simulation approach is more economical, efficient and time saving as compared to experimental techniques
Keywords: Carbon nano tube, Molecular dynamic approach, Conductivity.

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Optimization of Solar Enhanced Magnus Effect Wind Turbine

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Abstract: The conventional sources of energy like thermal power plant, hydro power plant etc. were the main contributors in the energy scenario earlier but due to increasing earth temperature i.e. global warming due to pollution, and declining of fossil fuels invoke us to think of more reliable and eco-friendly sources of energy and makes us shift to the renewable sources of energy to extract power and satisfy our need. In the present study, a wind turbine that utilizes the Magnus Effect along with solar panels on the cylinders (rotating cylinders are used in place of wings) to harness the wind energy is optimized. In this wind turbine, wings (aerodynamic) are replaced by the rotating cylinders and it is shown that aerodynamic efficiency of such a novel turbine is more than the conventional wind turbine. The body structure of cylinders (rotating cylinders that act as wings) are covered by the solar panels so that at a time some area of cylinder is covered with the solar panel and some energy will be extracted from sun also. We are presenting here, that how to optimize this Solar Enhanced Magnus Effect Based Wind Turbine using GA technique with MATLAB software. In this study some parameters are fixed to determine the maximum power at a particular cylinder radius and angular rotation of cylinders.
Keywords: Wind turbine, Magnus effect, Power plant.

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Performance Analysis of Exhaust heat powered automobile air-conditioning system based on ejector refrigeration cycle

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Abstract: Using waste heat to drive refrigeration frameworks for aerating and cooling or refrigeration purposes has developed ceaselessly. Waste heat worked cooling is included numerous alluring components in residential and also mechanical uses and is one way towards a more reasonable vitality framework. The execution of such cooling frameworks is firmly subject to running states of an engine. These cooling frameworks can be effectively worked in areas where the adequate measure of depleted heat from an engine is accessible.
A waste heat driven ejector refrigeration framework has been chosen as a contextual analysis for a further point by point examination. In which the depleted heat from a Hindustan Ambassador engine utilized as a driving operator for the cooling cycle. The low temperature heat source can be utilized to drive the ejector refrigeration cycle, making the framework appropriate for mix with the heat exchanger. Investigation of the waste heat driven ejector framework is started by enduring state examination. Framework execution relies on upon the decision of working liquid (refrigerant), working conditions and ejector geometry. An ejector refrigeration cycle utilizing R134a as working liquids to creates great execution and lower natural effect, since customary working liquids, CFC's and HFC's are solid atmosphere gasses. Advance on, vitality examination is utilized as an apparatus in distinguishing ideal working conditions and researching misfortunes in the framework. Vitality examination delineates that the dissemination of the irreversibility in the cycle between parts depends unequivocally on the working temperatures. The most critical piece of the proposition is to investigate the waste heat turning out from a Hindustan Ambassador engine and utilization of this warmth to drive the cooling arrangement of the vehicle to give agreeable conditions in the inside without utilizing any extra mechanical work as utilized as a part of current situation.
Keywords: Refrigeration frameworks, R134a, Waste heat.

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Study on Plastic Injection Mold flow analysis for head lamp reflector in Automobiles

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Abstract: Mold flow analysis for plastic injection molded part is mainly used to minimize the design and manufacturing problem in the tool. Mold flow software is used to analyze plastics flowing status during the Molding of Plastic parts for head lamp reflector.
Comparison and analysis is made in for different melt temperatures by MFA software. Processing by injection is the largest industrial way to obtain plastic parts. An analyzing accuracy of the injected part, improving the quality of the injection process and the quality of geometrical execution of parts and injection process, It has been performed with the new 3D simulation program Autodesk Mold flow Advisor. Thus, it was concluded that the mold flow software is a preventive and corrective tool, which helps to analyses the process to decrease the cycle time and to improve the Quality of the Product.
Keywords: Mold flow analysis, Plastic injection, Quality.

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Experimental investigation of mechanical property of PMMA/graphiteNano composite

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Abstract: In the present work, the mechanical property of PMMA (Polymethyl Methacrylate)/graphite Nano composite is tested by varying their composition. Solution casting method is used to fabricate three Nano composites designated as GP-9:1, GP-8:2 and GP-7:3. The dispersion of graphite power in PMMA is characterized by Scanning Electron Microscope (SEM) image.
SEM image shows the flocculation of graphite particles in the Nano composite and indicates non-uniform mixing of graphite particles in PMMA. With increase of graphite composition in PMMA, the tensile strength and Young's modulus increases. The Nano composite (GP-7:3) shows highest tensile strength and Young's modulus. It is also observed that the tensile strength of Nano composite is less than PMMA.
Keywords: PMMA, SEM, Tensile strength, UTM, Nano composite

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Effect of operating parameters on sound pressure level during turning operation of mild steel

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Abstract: In the present work, the effect of cutting speed, feed rate and depth of cut is studied on sound pressure level (SPL) during turning of mild steel on a Lathe machine. Design of experiments is done using L16 orthogonal array of Taguchi method. The cutting speed, feed rate and depth of cut vary from 0.5 mm- 2 mm, 0.089 mm/rev- 0.111 mm/rev and 54 rpm – 770 rpm respectively. The SPL is measured at five different locations at a distance of 0.5 meter from the center of each side.
The results show that the maximum values of SPL at five different locations are 82 dB(A), 82 dB(A), 87 dB(A), 79.7 dB(A) and 88.3 dB(A) respectively at 1 mm depth of cut, 0.102 mm/rev feed rate and 770 rpm cutting speed. The main effect plots show that the SPL increases with increase in cutting speed. Analysis of variance shows that the cutting speed significantly affects noise level
Keywords: Sound pressure level, Sound level meter, Taguchi method, Analysis of variance, Cutting speed, Feed rate, Depth of cut.

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Thermodynamic Performance Evaluation of Heat Pipe

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Abstract: Heat pipe is known as one of the most energy efficient passive heat transfer device with high thermal conductivity. In the present paper, the thermodynamic performance of heat pipe is experimentally evaluated at different operational angles with different mass flow rates of external cooling water at condensing section. It is found that the heat transfer rate is maximum (i.e. 754 W) at the heat pipe orientation of 30°.
Keywords: Heat pipe, energy analysis, orientation

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Geothermal Energy Resource of North-western Himalayas

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Abstract: Himalayan region is one of the main sources of geothermal energy in India. Geothermal energy came into the picture after the oil crisis in the 1970s, with proper research and exploration took place in 1973. India's geothermal potential is entirely undeveloped with a power potential of 10,600 MWe. The capital cost of generating energy from geothermal sources in India is estimated to be US$1.6–2.0 million per MWe, but the operating cost is minimal. This paper discusses geothermal heat source of different provinces of Jammu & Kashmir and Himachal Pradesh, with its direct use for production of electricity.
Keywords: Geothermal Energy, renewable energy, Geothermal Energy

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Optimization of Jatropha Ethyl Ester

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Abstract: Green, renewable and inexpensive fuels are essential for global human development and prosperity. Depletion of fossil fuels and their adverse impact on environment have necessitated the search for an alternative fuel. Non-edible vegetable oils are highly promising for producing liquid fuel like diesel. Jatropha is a potential feedstock for biodiesel, currently utilized in the India and many part of the world. The present study focuses on the preparation of ethyl ester of Jatropha oil (Biodiesel) using an acid catalyst. The Jatropha ethyl esters yield was 92.62%. The process parameters for the production of biodiesel JOEE were optimized using RSM.
Keywords: Optimization, Jatropha ethyl ester, Biodiesel.

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Experimental Analysis of Isentropic fluid based Vapour Compression Refrigeration System using Second Law of Thermodynamics

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Abstract: Energy-Exergy analysis of present vapour compression refrigeration system is done using isentropic fluid as refrigerant R134a.This thermodynamic analysis is carried out by 2nd law of thermodynamic approach in terms of COP_{II}. The performance of the system both theoretical and actual or experimental have been computed in summer condition. The results of proposed title explains the high grade energy consumption by compressor with 1 TR of cooling effect. COP_{II} indicates the actual energy output from the system. Due to higher GWP and ODP of R22, R134a can be used for domestic / commercial and industrial applications.
Keywords: Energy-Exergy analysis,VCRS, Hydrofluorocarbonrefrigerants,COP_I,COP_{II}

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Heat Transfer Enhancement of Radiators using Various Approaches

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Abstract: This paper reviews heat transfer enhancement of radiators using different approaches. It has been found that different method of heat transfer augmentation has been employed in different radiator design. These methods ranging from fin design modification, increasing core depth of radiator, change of tubes type, increasing surface area of radiator core, change of fin material, change of flow arrangement and changing the different types of fluid and mixture concentration. The performance of a radiator depends on its thermal and hydrodynamic performance. Certain parameters are of importance to the radiator performance such as; convective heat transfer co-efficient, pressure drop, inlet and outlet coolant temperature, air and coolant mass flow-rates, fin type, fin dimension and material. The various approaches are considered, depending on the application requirement and utilizing range. Radiator design modification such as increase in number of fins and tubes, material substitution have their limitations with certain negative consequences like added cost and weight with low efficient thermal performance compare to utilization of Nano-fluid approach. The engine life and its performance depend on coolant temperature. The application of nano-fluid in automobile radiator as coolant greatly affects the performance of the engine which in turn enhances its life span and fuel consumption. This paper attempts to review literature related to various heat transfer enhancement methods in vehicle radiator with different design, and compares the most effective approach amongst the methods taking into consideration cost, weight and thermal efficiency.
Keywords: Heat Transfer, Radiater, Thermal efficiency.

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Fuel Efficiency and Cost Feasibility Study of Solar Powered Air Conditioners in Automobiles

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Abstract: Air conditioner is the primary accessory of a passenger car which is used to maintain the vehicle cabin temperature and humidity at comfortable levels for a passenger. But this system consumes a lot of power and negatively affects the fuel efficiency of a car. Depleting natural oil resources, increasing oil prices and environment pollution increases the awareness about the Need to use renewable sources. In past years, lot of efforts have been made towards the application of solar energy to electric and hybrid cars, but a limited work is done on particularly air conditioning case. In the present work, feasibility study of air conditioner has been discussed using solar energy. With the implementation of solar conditioner in automobile the fuel efficiency will be increased and the tail pipe emissions are reduced. Also by detaching compressor from engine and making it run through the solar energy, the load on engine decreases.
Keywords: Fuel efficiency, Air conditioner, Automobile, Solar, Air-Conditioner, Car, Motor, Compressor.

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Improvement of Energy Efficiency Tactics for High-Pressure Boiler: A Case Study

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Abstract: In this paper, the findings of boiler house efficiency improvement study carried out in a large boiler house unit of a pulp and paper mill has been presented. The causes of poor boiler efficiency were various heat losses such as loss due to unburnt carbon in refuse, loss due to dry flue gas, loss due to moisture in fuel, loss due to radiation, loss due to blow down, and loss due to burning hydrogen, etc. The various heat losses were analyzed and a set of recommendations were made to the plant management for implementation, so that efficiency of boiler can be increased. Five important recommendations were implemented by plant management, and it has been seen that there is tremendous increase in boiler efficiency. Economic analysis reveals that the expenditure on the proposed system will be recovered in a short span of time. This work, with only five recommendations implemented, has resulted in net increase of 2% in overall boiler efficiency and an annual saving of Rs. 34, 12,395. In addition, it is observed that ruefulness in the operation of boiler can help a great deal in energy efficiency improvement in boiler
Key words: Boiler, efficiency, Insulation, soot blowing

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New Technological Development of Engine Management System for Automobile Sector

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Abstract: The performance and emissions control from automobile is major concern for vehicle industry and as well for customer with environmental aspect. Today engines deliver would be impossible without the electronics that manage everything from ignition, fuel delivery, speed control, etc in every aspect of performance and control. The Engine Management system (EMS) is incorporated in the modern day vehicle technologies for improved performance. This extended review explains the importance and scope of electronics based BOSCH and DENSO EMS technology features which carry excellent performance, good fuel economy and possibilities of no pollution. But complexity of price to be paid for new trend of technology.
Keywords: EMS, Emission control, Fuel economy, ECU.

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Exergy-energy analysis of vapor compression refrigeration systems for improve its thermal efficiencies by using Nano materials and eco-friendly refrigerants

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Abstract: Refrigeration is a technology which absorbs heat at low temperature and provides temperature below the surrounding by rejecting heat to the surrounding at higher temperature. Simple vapor compression refrigeration system which consists of four major components compressor, expansion valve, condenser and evaporator in which total cooling load is carried at one temperature by single evaporator but in many applications like large hotels, food storage and food processing plants, food items are stored in different compartment and at different temperatures. Therefore there is need of multi evaporator vapor compression refrigeration system. The systems under vapor compression technology consume huge amount of electricity, this problem can be solved by improving performance of system. Performance of systems based on vapor compression refrigeration technology can be improved by thermal performance of refrigerator is evaluated in term of COP which is the ratio of refrigeration effect to the network input given to the system. The COP of vapor compression refrigeration system can be improved either by increasing refrigeration effect or by reducing work input given to the system. Similarly, the throttling process in VCR is an irreversible expansion process. Expansion process is one of the main factors responsible for exergy loss in thermodynamic cycle performances, because of entering the portion of the refrigerant flashing to vapor in evaporator which will not only reduce the cooling capacity but also increase the size of evaporator. This problem can be eliminated by adopting multi-stage expansion where the flash vapors is removed after each stage of expansion as a consequence there will be increase in cooling capacity and reduce the size of the evaporator.Based on the literature it was observed that researchers have gone through detailed first law analysis in terms of coefficient of performance and second law analysis in term of exegetic efficiency of simple vapor compression refrigeration system with single evaporator. Authors also analyzed the effect of Nano fluids on simple vapor compression cycle in the term of pool boiling, COP, Thermal conductivity etc Researchers did not go through:

(i) The irreversibility analysis or second law analysis of multiple evaporators systems with multi-stage expansion in vapor compression refrigeration systems.
(ii) Researchers did not go through irreversibility and second law analysis of single and multi-stage vapor compression refrigeration systems by using of Nano fluid.
(iii) Effect of Nano fluids on first law efficiency, second law efficiency and irreversibility of each component of both systems (single and multi-stage VCR) experimentally.

Therefore the theoretical analysis in terms of first law efficiency, second law efficiency, and exergy destruction of single and multiple stages vapor compression refrigeration systems using ecofriendly refrigerants (HFO 1234yf and HFO-1234ze) for replacing ecofriendly R134a.

Keywords: Nano material, Vapor compression, Refrigeration.

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Ranking of Sustainable Sources of Energy Using PROMETHEE as an Outranking Method

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Abstract: The current energy mix of India has a heavy dependence on the conventional energy sources. The promotion of renewable energy in India needs to be monitored from a broader and long term perspective for its potential to positively contribute towards the India's energy security and reliability. The energy nexus of the world is worsening at an alarming rate, raising need for identifying and promoting alternate sources of energy. At present, 80% of the world energy consumption is derived from fossil fuels which are fast depleting and also raise serious concerns over the environmental consequences. Over reliance on fossil fuels, these fuels will have detrimental effects on the future energy needs of the world and its sustainable energy security. In Asia, the energy consumption picture is fast changing with India and China due to emerge as giants in their respective energy needs in the coming years. Since availability of energy is directly related to the development of a country, it is requisite that these countries take appropriate measures to ensure their energy security. Alternate cleaner sources of energy are provided by renewable sources of energy (RES) which need to be developed in the coming years. For India, the various available and most suitable RES are solar, wind, hydropower and nuclear energy. For the selection of the most appropriate source of energy, PROMETHEE has helped with the comparisons.

The main purpose of the paper is to select the sustainable source of energy in India fulfilling the all the major constraints such as availability, acceptability, affordability, intermittency, space limits, safety considerations, gestation period, execution, and localization. Four major types of sustainable sources of energy are considered for the analysis in this study; these sources are wind, solar, hydro, and nuclear energy. These types of sustainable sources of energy are constrained by different factors that vary from region to region. To know the suitability of a particular type of energy source in the Indian situation is the main problem of the research. In this paper, PROMETHEE (Preference Ranking Organization Method for Enrichment Evaluation) is considered to rank the suitability of an individual sustainable source of energy. PROMETHEE has the features to incorporate qualitative as well as quantitative attributes on criteria based on which the decision has to be made. This makes it suitable for systems and scenarios where the criteria are varied and of different types. Preference functions yield values ranging between 0 and 1 reflecting the degree of preference or indifference of any two alternatives with respect to a particular attribute or criteria. With the help of PROMETHEE I, pair-wise comparisons can be made between each pair of alternatives. This method might though yield a result wherein two alternatives are not comparable at all. PROMETHEE II avoids this by incorporating the net flows which shows the degree of preference of an alternative with respect to all the other criteria at the same time.

The main outcome of the paper is as solar energy is the most profitable and prudent source of energy for India; wind energy is second preference, hydro energy is the third preference; nuclear energy is the last preference. Nuclear energy has low acceptability in India due to the general perception of the high safety problem. This paper may help the decision makers to formulate long- term energy policy aiming for sustainability

Keywords: Energy, Outranking method, PROMETHEE.

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A study of 6Rs for environmental sustainability

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Abstract: Information technology and internet have played an important role in making awareness among the consumers regarding environment friendly products. Now, many consumers think about the environment and sustainability when they buy products. Designers and manufacturers are forced to follow the rules and regulations made to reduce the environmental impact of the products they create. Six keywords that can be taken by the consumer, the designer, the manufacturer and the retailer are: *Reduce, Reuse, Recycle, Rethink, Reuse, and Repair.Reduce*- It means to reduce the number of products, or buy the products that use less energy, or to design products that have less material in the product, take less energy to manufacture, and less packaging during transport. *Recycle*- It means the products are converted back to their basic materials and remade into new products. Designers and manufacturers of a product need to design product in such a way that the product can be recycled at the end of its useful life. *Reuse* - It means the product can be reused after completion of its first use through cleaning and repackaging. For example- glass milk bottles are a classic product that is reused. A more recent product that can be reused is a printer cartridge, which can be refilled. Designers need to consider how a product may be dismantled at the end of its life so that parts may be reused. *Refuse*- It means deny the use of the products which are not fit for the environment. The consumer has the choice as to whether they buy a product or not. *Repair*- Designers have a responsibility to design products that can be easily repaired. It takes fewer resources to replace a part of a product, than to replace the whole item. *Pre-cycling*- The aim of pre-cycling is to delay recycling for as long as possible. In this study, author has emphasized the use of 6Rs for environmental sustainability before designing, manufacturing and using the product
Key words: Environment, Recycle, Reuse.

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Acoustic power estimation from sound pressure level during turning of mild steel on a Lathe machine

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Abstract: In the present work, acoustic power (AP) is estimated form sound pressure level (SPL) during turning of mild steel. Taguchi method is used design of experiments and total 16 experiments are conducted by varying cutting speed, feed rate and depth of cut. Rectangular parallelepiped method is used to calculate acoustic power for SPL measurement. A total 17 grid points are considered and the SPL is measured at each grid point at different cutting speed, feed rate and depth of cut. The results show that the maximum acoustic power is 91.5 Watt at 1 mm depth of cut, 0.102 feed rate and 770 rpm cutting speed, while the minimum acoustic power is 82.9 Watt at 2 mm depth of cut, 0.111 feed rate and 54 rpm cutting speed. Frequency spectrum shows that the SPL is maximum at 1000 Hz.
Keywords: Sound pressure level, Acoustic power, Taguchi method, Frequency spectrum, Cutting speed, Feed rate, Depth of cut.

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Acoustic power estimation from sound pressure level during turning of mild steel on a Lathe machine

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Abstract: Present work investigates the effect of different operating parameters on noise generated during turning of stainless steel. For three variables and four levels, L16 orthogonal array of Taguchi method is used for design of experiments. Sound level meter (SLM) measures noise during turning operation at five different locations around the Lathe machine.
Out of the 16-experimental measurements, the maximum SPL is observed at 1.5 mm depth of cut, 0.095 mm/rev feed rate and 770 rpm cutting speed. The measured values of maximum sound pressure level (SPL) at five different locations are 83.2 dB(A), 85.6 dB(A), 85 dB(A), 86.3 dB(A) and 86.1 dB(A) respectively. The main effect plots show that the SPL increases with increase in cutting speed and decreases with increase in feed rate. Analysis of variance shows that the depth of cut is the most affecting parameter on SPL followed by cutting speed and feed rate.
Keywords: Sound pressure level, Sound pressure level, Sound level meter, Taguchi method, Analysis of variance, Cutting speed, Feed rate, Depth of cut Depth of cut.

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A study on Various Cooling Technologies in refrigeration: A Review

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Abstract: The continuous increase in the demand of refrigeration and air conditioning for the commercial purpose as well as domestic utilisation leads more research and development in the field of refrigeration and air conditioning. Aim of the research is to utilize available energy resourcesmore efficiently by minimizing waste energy. Different types of refrigeration systems continuously attract research interest. An extensive literature review of different refrigeration techniques such as VCRS, VARS, vapor adsorption refrigeration, ejector cooling and vortex cooling have been carried out in the present paper in order to compare their cooling capacity as well as COP of the system. Performance characteristics of different cooling techniques have also been evaluated in the present paper. The two most important parameters which are taken into consideration while comparing the different refrigeration systems are operating temperature and coefficient of performance.
Keywords: VCRS, VARS, COP, Cooling technology.

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An Overview on Fully Electrified Vehicles-A Technical Review

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Abstract: The whole world is facing with problem of lack of availability of crude oils or fossil fuels to get the source of energy which is consumed by automobile sector. More than 30-40% of fuel consume by transportation and vehicle sector in global level. Day to day demand of fuel and its harnessing from fuel reserves will create crisis in future, and the combustion of fuel for industrial, transportation, and vehicle running is responsible for severe problem with environment. Around 450g of CO2 discharge into atmosphere per kilo-meter through vehicle, this is signal for global warming and as well as for human hazardous. This paper is focused on alternate solution for source of energy engine power. To overcome this problem by development of electric car, which is one of the possible solutions for substituting the conventional fuel based source of energy and also can be affordable for common man as well as it does not emit any harmful emission which can be effective for our environment. It is a car which is powered by electric motor to ride the vehicle. In the illustration, we will provide you the relative features of electric car. However, there are some limitations in this features which can be improve by doing some research. The electric cars is revolutionary idea this will help to reduce or stop the pollution like air pollution and noise pollution, these are generated from automobiles which are working on gasoline and diesel. So the electric cars reduce the emission because it use the battery as a power source and it does not create any unwanted sound because there are very less parts as comparison to other fuel cars so this revolutionary idea also reduce the noise pollution. The present review summaries the technological development of fully electrified vehicles with its advantages, limitation and commercial feasibility.
Keywords: Electric Ignition, Energy Efficient Battery, Emission, Fuel Efficiency.

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A study on Various Cooling Technologies in refrigeration: A Review

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Abstract: The concept of using low grade energy as a power source of a refrigeration system since a long time ago. There are various conventional refrigerators powered by low grade heat which work either in a liquid or solid sorption cycle. Solid sorption refrigeration system is a type of environmental friendly and energy saving and utilized sorbents can be divided into composite, physical, chemical sorbents and forces involved in the adsorption process. The working pairs, refrigerants, types, characteristics, advantages and disadvantages of different adsorbents are summarized in this paper. By using the adsorption working pair of $Cacl_2$-NH_3 and resorption working pair $BaCl_2$–$MnCl_2$–NH_3, the refrigeration performances related with the heat transfer performances are also studied and result show that the coefficient of performance COP and refrigeration power is higher in resorption refrigeration system, because the cooling effect is generated by the reaction heat instead of the latent heat of evaporation.
Keywords: Re-sorption, Adsorption, Adsorbent, Refrigerant, Working pair, Mass transfer.

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Potential Biodiesel Feedstock- in Indian Perspective

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Abstract: World over there is a strong quest for the use of bio-fuels mainly for the transportation uses. As it is the sector badly affecting the urban air pollution due to harmful exhaust emissions of fossil fuels. In developed countries there is no dearth of feedstock for biodiesel, due to surplus availability of edible oils like soybean, canola, rapeseed, sunflower etc. Whereas, in developing countries like India there is a severe crisis of availability of edible oils. Therefore the emphasis is on utilising the non-edible oils. There are a large number of feedstocks available which are in surplus quantity. Considering the vast variety of geographical regions, there is a need to look in to the feasibility of all of them for biodiesel production. This paper discusses the pros and cons of the chief biodiesel feedstocks. Various factors affecting the suitability such as crop yield from area, oil content in seeds, fatty acid composition etc. are discussed in this work to evaluate the potential of these in substituting the petro diesel. It can be concluded from this study, that there are many options available. It is advisable to use all of them to cater the vast demand of biodiesel for blending with petro diesel, particularly in transport sector. Promoting their use may reduce the burden on edible oils and also make use of waste land as well as enhance the opportunities for local employment in farming, seed collection, oil extraction and biodiesel manufacturing etc.
Keywords: Biodiesel, Transport, Feedstock, Pollution, Non-edible.

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Tyre Pyrolysis Oil Production Methods and Principle Uses

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Abstract: Biofuel is an essential part of environment friendly infrastructure now days. It is proving to be an extremely good alternative for our automobiles industry and relieving the pressure from our conventional sources of fuels which are depleting at an exponential rate. A very popular source of biofuel is the vegetable oil feedstock and algae. But these are also presently available in a very limited quantity. Their large-scale production requires a huge land area which is again another problem. Another supplement to these oils may be the large quantity of waste tyres and plastics whose quantity is increasing every day. The oil from pyrolysis of tyre and plastics come as a boon to the society. The tyre pyrolysis oil, when used as fuel is found to be better in a lot of performance and emissions characteristics. The properties of plastic and tyre oil are also discussed in this paper. The parts of a pyrolysis plant and the products have been briefed out. This study focuses on the ways to eliminate the waste and getting the best products.
Keywords: Pyrolysis, Tyre, Plastic, Biofuel

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Multi Criteria Decision Making Problem Solving Tools- A review

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Abstract: Decision making is a very important aspect of everyone's life.In everyday one has to make many minor or major decisions. But, to make the major decisions technically we analyse the data and look at all the attributes of the given problem and the alternatives present as the solution. Any major decision taken in haste or without proper thinking may result in a big setback. There are various methods used to help us arrive at the best decision for a particular decision-making problem. The MCDM along with the MADM and MODM are discussed in brief in this paper. While some of the methodologies like AHP, SAW, WPM, TOPSIS etc. are discussed as well as some basic steps followed are also illustrated in this paper. Using any suitable method from these may prove to be beneficial in future
Keywords: TOPSIS, AHP, MADM, MCDM, Decision making .

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Use of Jatropha Biodiesel in Reducing Agricultural Costs for the Indian Farmer

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Abstract: Agriculture forms the backbone of the Indian economy and contributes the largest part but the rising expenditures in the form of cultivation costs are making it less and less profitable day by day. The use of artificial insecticides and pesticides along with fertilizers is not only expensive for the average Indian farmer but it also causes environmental pollution. The use of diesel in tractors also adds to the bill in agriculture, Use of Jatropha curcus as a fencing crop for the protection of food crops offers a solution to all these problems as it can shield the crops ,be used as an organic manure and the biodiesel derived from Jatropha can drastically reduce costs.
Keywords: Biodiesel, Agriculture cost, Pollution.

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Heat Transfer Enhancement by Using Nanofluids in Shell & Tube Heat Exchanger

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Abstract: In this paper, we discuss the wide variety of industrial processes involve the transfer of heat energy. Throughout any industrial facility, heat must be added, removed, or moved from one process stream to another and it has become a major task for industrial necessity. These processes provide a source for energy recovery and process fluid heating/cooling. The enhancement of heating or cooling in an industrial process may create a

saving in energy, reduce process time, raise thermal rating and lengthen the working life of equipment. Some processes are even affected qualitatively by the action of enhanced heat transfer. The development of high performance thermal systems for heat transfer enhancement has become popular nowadays. A number of work has been performed to gain an understanding of the heat transfer performance for their practical application to heat transfer enhancement. Thus, the advent of high heat flow processes has created significant demand for new technologies to enhance heat transfer. There are several methods to improve the heat transfer efficiency. Some methods are utilization of extended surfaces, application of vibration to the heat transfer surfaces, and usage of micro channels. Heat transfer efficiency can also be improved by increasing the thermal conductivity of the working fluid. Commonly used heat transfer fluids such as water, ethylene glycol, and engine oil have relatively low thermal conductivities, when compared to the thermal conductivity of solids.

High thermal conductivity of solids can be used to increase the thermal conductivity of a fluid by adding small solid particles to that fluid. The feasibility of the usage of such suspensions of solid particles with sizes on the order of 2 millimetres or micrometres was previously investigated by several researchers and the following significant drawbacks were observed (Das and Choi, 2006).

1. The particles settle rapidly, forming a layer on the surface and reducing the heat transfer capacity of the fluid.
2. If the circulation rate of the fluid is increased, sedimentation is reduced, but the erosion of the heat transfer devices, pipelines, etc., increases rapidly.
3. The large size of the particles tends to clog the flow channels, particularly if the cooling channels are narrow.
4. The pressure drop in the fluid increases considerably.
5. Finally, conductivity enhancement based on particle concentration is achieved (i.e., the greater the particle volume fraction is, the greater the enhancement—and greater the problems, as indicated above). Thus, the route of suspending particles in liquid was a well-known but rejected option for heat transfer applications. However, the emergence of modern materials technology provided the opportunity to produce nanometre-sized particles which are quite different from the parent material in mechanical, thermal, electrical, and optical properties.

Thermal conductivity is considered important factor for rapid cooling and heating application. Base heat transfer fluid normally having low thermal conductivity, so we go to Nano fluid for increases the heat transfer rate. Nano fluid is nanometre sized particle such as metal, oxide, and carbide etc., dispersed into base heat transfer fluid. In this paper shows varying factor affecting the thermal conductivity of Nano fluid at different conditions. All researcher tried to increase the heat transfer rate by considering thermal conductivity Nano fluid. Thermal conductivity is increased with increasing concentration of metal particle within critical limit. Thermal conductivity is affected by the following parameters like: shape, size, clustering, collision, porous layer, melting point of nanoparticle etc., controlling this type of parameters to increase the thermal conductivity of Nano fluid. Nano fluid is advanced heat transfer fluid for next generation.

Keywords: Heat transfer, Heat Exchanger, Thermal conductivity, Nano fluids.

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Q.F.D. Internal Customer of NOAC

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Abstract: Quality Function Deployment (QFD) provides a logical and systematic approach to capture the voice of the customer. It aids to transform the value, imprecise customer needs into measurable product design specification. Q.F.D. is a customer driven tool in order to fulfil their optimum needs.

For enterprise, to stay and sustain the business, it is compulsory condition to have adequate market share by way of satisfying the customer. In "Next Operation as Customer" (NOAC) System, there are two types of customer, first one is who use the end product and pays its value. Another customers are not in market but presents on production line. They play multiple roles, the first one is as a immediate customer using intake material. Further, that immediate customer aids value into intake material, carrying out some operation on that (as a manufacturer) and push to next customer. Like that the chain of internal customer cum operator is continued till the end product is made ready for the market. Practice of NOAC in production like automobile, electronic etc. have significant effect on their productivity.
Keywords: Quality Function Deployment, Internal Customer, Statistical Quality Control, Production, NOAC, Operation, Customer.

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To study the stress concentration effect on filleted stepped circular shaft subjected to axial stress by use of Finite Element Method

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Abstract: The stepped circular shaft with fillet is used in different engineering applications. This type of shaft with axial loading comes under axisymmetric problem in finite element analysis. Here a circular stepped shaft is made of two steel shafts of diameter 40mm and 35mm and fillet radius of 3mm. Axial loading applied to the shaft is 7000kN/m^2. Due to fillet stress concentration effect is considered at the junction of two shaft. The von misses and longitudinal stress at the junction the fillet is obtained by use of commercial finite element software ABAQUS of version 6.12. This result is validated analytically with solid mechanics formula which considers stress concentration effect.
Keywords: Stepped circular shaft, Finite element Analysis, ABAQUS, Solid mechanics.

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Determination of static fracture toughness of material with different methods: Review

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Abstract: The stepped circular shaft with fillet is used in different engineering applications. This type of shaft with axial loading comes under axisymmetric problem in finite element analysis. Here a circular stepped shaft is made of two steel shafts of diameter 40mm and 35mm and fillet radius of 3mm. Axial loading applied to the shaft is 7000kN/m^2. Due to fillet stress concentration effect is considered at the junction of two shaft. The von misses and longitudinal stress at the junction the fillet is obtained by use of commercial finite element software ABAQUS of version 6.12. This result is validated analytically with solid mechanics formula which considers stress concentration effect.
Keywords: Fracture, toughness, Circular shaft

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Design of forced controlled stamping system

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Abstract: Stamping process is used to mark logos and batch numbers in a product. Some applications require engraving of logos and other useful information to be stamped on products. In conventional stamping systems the part is stamped with the same force every time. With the current demand of industries being flexible and smart manufacturing systems the conventional stamping system falls behind and requirement of stamping the logos and information on different types of materials. Some materials are delicate such as glass, copper, aluminium require a considerably smaller force while stamping whereas some other materials such as hardened steel, cast iron require higher force during stamping process. With the limitations of conventional stamping system in consideration this work proposes a force controlled stamping system. The proposed system is capable of stamping parts of different materials by providing controlled force each material requires for the stamping process. The system detects the part senses the material using RFID tags and adjusts the stamping controller to provide the exact force required for that particular material. For different materials the servo controlled system gets directions from RFID readers whenever a new material is received in the stamping station.
Keywords: Stamping, controlled force, RFID, Automation.

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Improving the Tractive Performance with Four-Wheel Drive (4WD) System

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Abstract: This paper gives a brief study of the components, operating modes, merits and demerits of a four-wheel drive system over two-wheel drive system, and a case study of Mahindra Scorpio S11 is done for tractive effort by 4WD and 2WD (front wheel drive). The results for Mahindra Scorpio S11 showed that the tractive effort by 4WD system increases as the gear ratio decreases, i.e., highest for reverse gear (14362.96 Nm) with gear ratio 3.28:1, 1st gear (13000.00 Nm) with gear ratio 2.97:1, 2nd gear (9066.67 Nm) with gear ratio 2.07:1 whereas lowest for 6th gear (2451.85 Nm) with gear ratio 0.56:1. Similar results for tractive efforts by 2WD (front wheel drive) system can be depicted, i.e., highest tractive effort for reverse gear (7674.07 Nm), 1st gear (6940.74 Nm), 2nd gear (4837.04 Nm) whereas lowest for 6th gear (1311.11 Nm). As observed, the tractive effort by a 4WD system is comparatively higher than a 2WD (front wheel drive) vehicle. Thus, this results into reduced wheel slippage tendency, better climbing capability in hilly areas and better driving control over the vehicle on the low frictional surfaces such as wet/snowy surfaces. Whereas additional components in 4-wheel drive system adds on weight; increases cost, maintenance, repair, noise and vibrations; and makes the construction comparatively more complex.
Keywords: Four-wheel drive, Differential, Propeller shaft, Tractive effort, Traction.

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Study of Parameters in Metal Cutting Process Reducing Resonance Effect

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Abstract: The researchers are continuously working on minimizing the cost occurring to obtain required quality and quantity of finished product within the international norms. Metal cutting is widely used formanufacturing of chips or debris .The authors studied and analyzed the various parameters that affects metal cutting .The paper concentrate towards the minimization of production cost further decreasing thechatter over work piece and its subsequent effects .The different parameters were optimized by using six-sigma techniques and theirs effects on finished products were analyzed. The final desired surface finish of work piece through metal cutting were controlled by several factors which included spindle speed, frequency, vibration ,tool life etc. Chatter was caused by self-induced vibration and the effect of highamplitude frequency and adversely affected at the resonance when the natural frequency and chip frequency were aligned It was observed that the chattering was highly effected by the spindle speed, at very low speed the chatter was almost negligible. In addition, the increase in spindle speed significantly decrease the chatter.
Keywords: Cutting speed, Spindle speed, Vibration frequency, Tool life, Chatter, Resonance.

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Review on direct Transesterification method using recent technologies

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Abstract: Nowadays the research is focused on microalgae oil for biodiesel production because of high yield as compared to vegetable plant oil and it fixes carbon dioxide from atmosphere. It is a third-generation biofuel that can easily replace diesel which will deplete in couple of decades and can be used in diesel engine without any modification simultaneously cutting down the engine emissions. The biodiesel production from microalgae is a complex process which includes harvesting, drying, cell disruption, lipid extraction and biodiesel production. However, using direct in-situ transesterification these steps are reduced, and biodiesel production get simplified. Here in this wet algal biomass directly transesterified using alcohol, catalyst and solvents thus eliminating the drying and oil extraction process. This paper reviews the different methods used for direct transesterification in order to reduce the cost of production and increase the biodiesel yield. For cell different techniques are studied and analyzed the best technique from literature review.
Keywords: Direct transesterification, Microwave, Ultrasonic, Microalgae.

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Thermodynamic Analysis of Gas Turbine cycle with inlet air cooling

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Abstract: This paper presents thermodynamic methodology for the performance evaluation of Gas turbine cycle with inlet air cooling. Gas turbine inlet air cooling technique is a useful method for increasing output for geographic regions where significant power demand occur during warm months. Inlet air cooling increases the power output by taking advantage of higher mass flow rate when the compressor inlet temperature decreases. This study investigated the effect of inlet air cooling on simple Gas turbine cycle by employing Evaporative cooling technique. The effects of ambient temperature, turbine inlet temperature and relative humidity of air in the thermodynamic analysis of Gas turbine cycle on thermal efficiency of the cycle, specific work output and heat rate have been investigated. From the results obtained in graphs it is observed that thermal efficiency of Gas turbine cycle with inlet air cooling increases and network output increases as Ambient temperaturedecreases; thermal efficiency and specific work output of Gas turbine cycle with inlet air coolingincrease with increase in turbine inlet temperature. Results also show that thermal efficiency of Gas turbine cycle with inlet air cooling is always greater than simple gas turbine cycle for same ambient temperature and turbine inlet temperature.
Keywords: Gas turbine, Evaporative cooling, Ambient temperature, Turbine inlet Temperature, Relative humidity.

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Thermodynamic Analysis of Regenerative Gas Turbine cycle with inlet air cooling

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Abstract: This paper presents thermodynamic methodology for the performance evaluation ofregenerative Gas turbine cycle with inlet air cooling. Gas turbine inlet air cooling technique is a useful method for increasing output for geographic regions where significant power demand occur during warm months. Inlet air cooling increases the power output by taking advantage of higher mass flow rate when the compressor inlet temperature decreases. This study investigated the effect of inlet air cooling on regenerative Gas turbine cycle by employing Evaporative cooling technique. The effects of ambient temperature, turbine inlet temperature and relative humidity of air in the thermodynamic analysis of regenerative Gas turbine cycle on thermal efficiency of the cycle, specific work output and heat rate have been investigated. From the results obtained in graphs it is observed that thermal efficiency of regenerative Gas turbine cycle with inlet air cooling increases and network output increases as Ambient temperature decreases; thermal efficiency and specific work output of regenerative Gas turbine cycle with inlet air cooling increase with increase in turbine inlet temperature. Results also show that thermal efficiency of regenerative Gas turbine cycle with inlet air cooling is always greater than conventional regenerative Gas turbine cycle for same ambient temperature and turbine inlet temperature.
Keywords: Regenerative gas turbine, turbine inlet temperature, Gas turbine.

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Reducing Strain on the Indian Economy through Biodiesel

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Abstract: Indian economy has registered an unprecedented growth since 1992 and its energy demands continue to grow with India and Japan vying for the position of third biggest energy consumer after Unites States of America and China. But with most of these energy requirements being fulfilled by fossil fuels and India not possessing any significant resources of crude oil, around 80% of the needed petroleum is imported which drains the nation of much needed foreign exchange. So, a programme to develop indigenous energy resources to meet our needs has to be developed and biodiesel can be the answer to India's problem with the central government also recognizing this.
Keywords: Biodiesel, Economy, Energy

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Reducing Strain on the Indian Economy through Biodiesel

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Abstract: Utility model patent regimes – which provide a type of patent right that is distinct from invention patents. As India intended to boost the domestic manufacturing industry through make in India and startups.It also seeks to facilitate foster innovation and protect intellectual property.Manufacturing currently contributes just over 15% to the national GDP of India which is aim up to 25% in near future. Latecomers institute utility model patent regimes that were less strict and offered less appropriability during earlier stages of economic catch-up, likely in order to facilitate technological learning. Subsequently, the strictness of the regimes was increased as knowledge accumulation and, to some extent, technological capabilities increased and, in mainland India's case especially, as patent quality problems were experienced. In this paper the focused is that increasing the strictness of utility model patent regimes may reduce patenting in the short-term, but not the long-term.

Keywords: Utility Model, IPR, Patent.

ICARI-ME-18-01-53

Corrosion and Remedies in Dry Type Fire Sprinkler System in LPG Bottling Plant

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Abstract: Internal surface corrosion in the security air pipeline is a major problem faced by the Delhi Bottling Plant (Indian Oil Corporation Limited) authorities which accounts for a surplus cost of about 1.97 million INR every year to the plant. The security air pipeline consists of compressed air, which remains stagnant in the

pipeline for a long time, and is released only when there is a case of fire in the plant. This stagnant air comprises of water vapors, which after their condensation, starts the process of internal corrosion.
This surplus cost arises due to several effects of corrosion as cracks in pipeline leading to their repairing cost. Plant shutdown cost while repairing. Degradation cost of pipelines leading to its replacement after every 4-5 years. Excessive running cost of screw air compressor. Other miscellaneous cost.After completion of this research, it was calculated that this huge amount of money can be saved by IOCL, if a system of nitrogen inert, as proposed in this paper, is used for the pipelines
Keywords: Corrosion, Fire sprinkler, LPG, Bottling plant.

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Modelling and Optimization of Process Parameters affecting machining involved in Electric Discharge Machining by GA-ANN

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Abstract: Electric Discharge Machining process is one of the earliest and most extensively used unconventional machining process. It is a non-contact machining process that uses a series of electric discharges to remove material from an electrically conductive workpieces. The EDM process parameter are pulse on time, duty factor, peak current, peak voltage, flushing pressure. This study is aimed to do a comprehensive study of the EDM, develop a model that can predict the machining characteristic and then optimize the output parameters. Artificial Neural Network processes the information by transferring the data between its basic building block i.e. Artificial Neuron. Genetic algorithm is a metaheuristic technique used to find the best fit and approximate solutions to optimization and search problems. In this project we proposed a GA-ANN hybrid model. Also comparison is studied the experimental values and ANN predicted values. GA-ANN model concludes that the error calculated in experimental values V/S ANN-GA predicted values is very less compared to experimental values V/S ANN predicted values.
Keywords: Electric Discharge Machining, Unconventional machining, Genetic algorithm.

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Design and Analysis of Composite Material Leaf Springs

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Abstract: Enhanced ability and performance, coupled with weight reduction are the driving factors of research in the automotive sector has been done. Suspensions, which form an integral part of an automobile, a lot of research in the field of weight reduction. Weight reduction improves power to mass ratio, hence improving acceleration. Conservation of natural resources, energy and economic viability are other factors that define the research. Keeping in mind the above mentioned factors, this research paper describes the designing and analysis of leaf springs. The paper compares the weight, von-mises stress and deformation of leaf springs made of steel and glass fibre on application of same amount of load. The designing of the leaf spring has been done on CATIA V5 and the analysis has been done on ANSYS 15.0. In this research, S-glass fibre and E-Glass fibre

have been compared with AISI 6150 steel as a material for leaf spring for a light weight vehicle -Mahindra commander 650 DI- using von-mises stress analysis, deformation analysis and strain analysis
Keywords: Composite material, Leaf spring, Automobiles.

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Thermodynamic analysis of single and multiple stage vapour compression refrigeration systems to improve its thermal efficiencies by using nano refrigerants

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Abstract: In this paper the effect of Nano refrigerants to improve thermal performance of vapor compression refrigeration systems (both single and multiple evaporator system) is discussed in details. By improving: First law efficiency. According to first law of thermodynamic energetic efficiency /COP is defined as the ratio of net refrigeration effect to the per unit power consumed. Therefore the first law analysis restricted to calculate only coefficient of performance of the systems and second law efficiency derived from the concept of exergy, which was given by was given by the second law of thermodynamics. Second law efficiency is the exergy of the heat abstracted in to the evaporators from the space to be cooled and exergy of fuel is actual compressor work input along with Reduction of system defect by using of nanoparticles in vapor compression refrigeration systems which results into reduction of work input. To obtain above research objectives this paper mainly deals with methodology of improved design and development of multi and single stage vapor compression systems and verification of theoretical results with results obtained from experimental setup by using pureecofriendly refrigerant (R-134a, R1234yf and R1234ze) and effect on above parameters with Nano fluids. Analysis in terms of energy efficiency, energetic efficiency and irreversibility of each component of both (single and multi-stage vapor compression) systems
Therefore detailed system optimization and experimental to verify theoretical and experimental work by using locally available Nano refrigerants (CuO, Al_2O_3 & TiO_2 etc) in the secondary circuit of evaporator of evaporator and also in the water cooled condensers also improves the thermal performance of vapor compression refrigeration systems discussed in details.
Keywords: Nano refrigerants, Vapor compression system, Cooling.

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Status and management of wetlands in India

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Abstract: India have number of water resources like, rivers, streams, lakes, ponds, wetlands and reservoirs which have their unique properties. Among these water resources wetlands are most efficient and productive ecosystems on the earth surface. Wetlands are complex ecosystems which undergoes various physical, chemical and biological changes. Their highly productive nature, provides mankind with various direct values viz. food, fodder, medicines, raw materials and indirect values viz. nutrient retention, flood control, carbon sequestration, ground water recharge. The past study depicts the exploitative attitude of society towards the economic exploitation resulted in deterioration and destruction of wetland ecosystems. Moreover, technological advancement in urban, industrial and agricultural field has created stress on these wetland ecosystems. Most of the Indian wetlands are associated with river systems and distributed over a wide range from the cold, arid zone of Laddakh, and the warm, arid zone of Gujarat-Rajasthan .Some wetlands are also associated to the tropical monsoon of central India and the wet, humid zone of the southern

peninsula. Around 4.1 million hectares (excluding irrigated agricultural lands, rivers, and streams)of land area is covered by wetlands out of which 1.5 million hectares are natural and 2.6 are man-made, An estimated 6,750 sq. km area is occupied by coastal wetlands which is largely dominated by mangroves. Among 1/3rd of Indian wetlands have been extinct due to reduction in their areal extent, decline in water level and various ecological activities they perform. This paper reviews the wetland wealth of India pertaining to their benefits, geographical conditions, threats, conservation and sustainable management plans.
Keywords: Wetland, Management plans, Threats, Ecological processes.

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Sewage Treatment and Disposal in Delhi

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Abstract: Delhi, which is the capital of India and also the fastest growing metropolitan city, does not have adequate sewage treatment and disposal infrastructure. In most of the cases wastewater is let out untreated and it either seeps into the ground as a potential pollutant of groundwater or is discharged into the natural drainage system causing pollution in downstream areas. Wastewater needs to be conveyed to sewage treatment plants for treatment and treated sewage must meet the aesthetic standards of ambient environment for receiving water bodies. This paper gives an overview on sewage treatment plants (STPs) in Delhi, focusing majorly on the Okhla wastewater plants. The total treatment capacity of STPs in Delhi, was mapped against the total sewage generation and hence the gap between the two was substantiated. This information will be very useful for further allocation of STPs in Delhi and also for safeguarding the health of people and environment
Keywords: Delhi, Disposal, Sewage, STPs, Treatment.

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Sewage Treatment and Disposal in Delhi

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Abstract: A blockchain is a continuously growing list of records, called blocks, which are linked and secured using cryptography. It is "an open, distributed ledger that can record transactions between two parties efficiently and in a verifiable and permanent way".
This paper explains the concept, characteristics, and need of Blockchain. It attempts to highlight role of Blockchain in shaping the future of banking, financial institutions and adoption of Internet of Things(IoT). Motivated by the recent explosion of interest around blockchains, we examine whether they make a good fit for the Internet of Things (IoT) sector.
We describe how a blockchain-IoT combination facilitates the sharing of services and resources between devices and allows us to automate in a cryptographically verifiable manner.
Keywords: IoT, block chain, cryptography

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Launch pad for multi rotor Unmanned Aerial Vehicle using Composite material

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Abstract: In Agricultural fields, due to uneven terrains there is difficulty for the Multi-rotors in taking-off and landing, therefore an indigenous launch pad is designed as a semi-automatic balancing platform powered by brushed DC motors, controlled by linear actuators, capable to provide launch and land capability to large multi-rotors at uneven terrain. With its simple and compact plug-n-play design, the product hosts adaptability, versatility, usability and comfort.
The aim is to design a lightest possible platform capable to carry weight more than 25 kilograms by the system using state of art materials. Different composite materials, consisting reinforced fibre, wood and other materials were compared by their strength to weight ratio. A system engineering approach is followed during the process of design and development of the system. The system completes the demand of a launching and landing platform for the Multi-rotors and opens a new paradigm of use of foam and wood with reinforced fibers in composite material.
Keywords: Corrosion, Fire sprinkler, LPG, Bottling plant.

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Industrial Energy Efficiency Improvement through Standardization

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Abstract: India is the fourth largest consumer of energy in the world but it is not endowed with abundant energy resources. There has been a general decline in the energy intensity of production however, still the Indian Industries comparatively fares lower internationally. Thus, there is need for sustained energy conservation efforts and continual improvement in the energy efficiency at the level of the individual organizations. The requirement of the industry sector is not only to precisely describe the growth in industrial energy consumption vis-à-vis the growth in industrial output but also to bring their energy intensities in-line with the international standards and the best practice worldwide. Standardization, therefore, assumes an important role for achievement of policy commitments, for taking actions needed to improve the energy performance and to demonstrate the conformity of the energy management system to the defined requirements.
Keywords: Energy, Industry, Management.

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Properties and Characterization of Conventional and Alternative Aviation Fuels: A Review

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Abstract: Fuels are the backbone of modern society. Nowadays, the air transportation is more popular and growth faster to respond the opening business and travel. Aviation fuels include both jet fuel for turbine engines and aviation gasoline for piston engines. The present paper deals about detail review of properties and characterization of Aviation fuels such as natural gas, gaseous fuel, solid fuels and alternative fuels. Jet fuel is almost exclusively extracted from the kerosene fraction of crude oil, which distills between the gasoline fraction and the diesel fraction. The paper reports preliminary progress in the selection and characterization of potential, liquid and gas, alternative fuels for aviation purpose. Due to increasing in air transportation, the demand of conventional fuel or fossil fuel is increasing rapidly. The use of bio-fuels and other alternative fuel seems a viable solution for the problems of decreasing fossil-fuel reserves and environmental concerns.
Keywords: Aviation fuels; Properties and characterization; Bio-fuels.

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Analysis of factors effecting Foreign Direct Investment in India

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Abstract: The study evaluates the factors affecting the FDI inflow into India. The relationship between FDI inflows and its selected determinants are examined. The study is based on the secondary time series data collected for thirty six years ranging from FY 1980-81 to 2015-16. GDP, exchange rate, inflation, oil production, population growth and trade openness are the variables taken as the determinants of FDI inflows. The collected data was analyzed using linear regression analysis. The estimation result finds that GDP affects FDI positively and significantly whereas population growth and exchange rate affects it negatively. The regression model was found to be of good fit to predict the FDI inflows based on its R^2 and F-test values. Hence, favorable measures should be taken by the policy makers to improve these variables under study which will result in increased foreign capital inflow.
Keywords: Foreign direct investment, GDP, Capital inflow.

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Tacit Knowledge Sharing in the Virtual World

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Abstract: In this era of knowledge economy, knowledge is the key resource for competitive advantage. The power of knowledge will be the deciding force for the future organizations. The classification of knowledge, which is widely used is explicit and tacit knowledge. Explicit knowledge refers to the formal knowledge that can be articulated and codified. Tacit knowledge the most valuable type of knowledge which is informal and exists in the human brain and mental models is the expertise which the organizations will seek to exploit. The real challenge is to manage this type of knowledge which is difficult to articulate. This paper examines the potential ways to manage, create and exchange this type knowledge within an organization in the context of virtual world. This paper discusses the techniques to share and manage tacit knowledge, including the overview of tacit knowledge, its benefits, and the other dimensions to it.
Keywords: Explicit knowledge, Tacit knowledge, Knowledge Management, Web 2.0, Wiki, Communities of practice.

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A Study of Customer's Buying Behavior in the Digital World

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Abstract: Artificial Intelligence is the new air and Internet of Things is the upcoming future of the entire world. The citizens and netizens from across the world are keenly watching each and every action of India with the passage of time. As India is the only country in the World who is not only performing and radically changing itself but the adaptive Global World is revolving around it The phase of technological growth in India changed the way for doing business in market oriented environment. Slowly and gradually the people of India walked from the agricultural mode into the space of Digital India.
Keywords: Artificial Intelligence, Internet of Things, E-commerce, Digital India, Information Technology, Machine Learning, Digital Transactions, Innovation, Analytical.

ICARI-MG-18-01-04

Impact of External Debt on Human Capital Development in Nigeria

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Abstract: The need to finance budget gaps often compel nations to seek external sources of fund with the intention that such funds would be applied on projects that will enable her deepen the economy. Thus, the issue of external debt and economic development has attracted a wide discourse among researchers, analysts, practitioners etc, with the main intension to ascertain how the nation has indeed applied such funds and the effect. Extant studies have revealed conflicting results on the interaction between economic development

dynamics and external debt fundamentals. Also, few of these studies have attempted to consider the linkage between the human factor matrix and external debt financing. It is against this backdrop that this study sought to examine the impact of increase in external debt stock and its servicing on human capital development. Four hypotheses were formulated and tested at 5% level of significance. Ex-post facto research design was adopted and time series data spanning 30 years (1986-2015) were processed using the models earlier formulated. Ordinary Least Square (OLS) regression technique was used to test the hypotheses. The study found that both external debt stock and external debt servicing had significant negative effect on human capital development; external debt stock borrowed from Paris club and multilateral creditors had insignificant negative effect; those borrowed from London club had insignificant positive effect while those borrowed from bilateral creditors had significant positive effect. On debt servicing, all the creditors showed insignificant positive effect except London club that had significant positive effect. The study concluded that nations could finance their budget deficits with external funds but should ensure that such funds are applied on priority projects that have the capacity to deepen the economy and improve the well fair of her citizens. Among other recommendations is the fact that both the state and federal government should create investment window that will significantly reduce the level of unemployment prevalent in the country and also embark on industrial revolution that will greatly widen the nation's revenue base and reduce her reliance on oil and gas as the main source of revenue.

Keywords: External Debt, Human Development Index, Debt Servicing, Foreign Exchange Rate, Inflation Rate.

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To study the consumer buying behavior and attitude towards organic food products in Varanasi

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Abstract: The objective of this paper is to identify consumers' attitudes and buying behavior towards organic food products in Varanasi. This paper draws on a non-probability convenient sample of 100 respondents to explore the attitudes and buying behavior of consumers towards organic food products in Varanasi. Varanasi people are aware about environmental issues and health consciousness. They search for information about the nutritional value of organic food and demand more products free from pesticides and artificial ingredients. The findings show that most the consumers are aware about organic consumption mainly with fruit beverages and vegetables. Although demographics seem to affect attitudes towards organic food products and their nutritional value in explaining actual buying behavior is negligible. It is indicated that the data gathered for study focus on the Varanasi city Uttar Pradesh. The findings confirm that health issues, concern for the environment issues, animal welfare and support of the local economy are drivers of organic food consumption. However, there is an indication that the importance of motives and barriers may vary for different organic product categories and perhaps future research should focus on organic product segmentation. Despite certain similarities in consumers' attitudes towards organic food products have been identified, this paper records the variation in behavior towards organic food among the various consumer groups analyzed in Varanasi, and find the gap between attitude and actual buying behavior. Given the complexity of consumer decision making, future research should explore the other value trade-offs that consumers make. This research paper has an attempts to provide the awareness of consumers towards organic food in Varanasi.
Keywords: Organic food Products, Food products, Consumer buying behavior, Health consciousness, Environmental issues.

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An Evaluation of consumers' brand awareness and buying behavior for two wheeler bike in Lucknow city

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Abstract: The aim of this paper is to analyze the brand awareness and buying behavior of consumers for two wheeler bikes in Lucknow City. Branding play a very important role to build the perception of customers towards the particular product. A total of 100 respondents is selected through a structured questionnaire. Respondents are spread across the highly sensitive area of Lucknow City. Simple statistical analysis like t- test, descriptive statistical analysis, frequency distribution, cross tabulation to assess the consumers' brand awareness and buying behavior for two wheeler bikes. Customers are more aware and associated with branded bikes in terms of price variety quality and availability. This paper analyses the buying behaviour of the consumers under survey with respect to branded products of two wheeler bikes. These consumers are in a relatively advantageous position in terms of purchasing power and awareness of brand value of the products. The results may help the company and dealers to understand a diversified set of preferences for products and market attributes, so that they can make better decisions in the automobile.
Keywords: Consumer behaviour, brand awareness, Brand value, branding strategy

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Tata- Corus: The Case of Distressed Takeover

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Abstract: The acquisition of the Corus led to Indian tricolor hoisting on the British soil. The Anglo Dutch steel company Corus Group Plc. (Corus) was acquired in by Tata Steel in an USD 12 billion deal making it an unprecedented move of a Western nation company being acquired by an Eastern nation company. The acquisition was in pursuit of its intention to follow a disintegrated business model and to gain from synergies. Unfortunately, the financial fair could not last for a long period and it turned out to be an averted game. The paper documents the reasons for the failed acquisition
Keywords: Tata, Corus, Acquisition, Synergy.

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Customer Evaluation of Brand Extensions

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Abstract: Todays, companies are using the brand in order to differentiate themselves from their competitors and to communicate unique benefits of their products. Once a brand is established, the brand name itself is thought to add value to the product in the minds of consumers. This added value transforms into brand

extensions many times. Companies provide buyers with several related or unrelated categories of brand extensions. Some of these brand extensions become a success story whereas some of them do not. So, what becomes critical for the company is to know how the customer evaluates the brand across different product categories. This paper tries to examine customer evaluations for brand extensions taking a small case of two brands Vivel and Head & Shoulders for the hypothetical brand extensions. These two cases clearly depicts the role of eight variables as mentioned in the paper in brand acquisition extensions
Keywords: Companies, Brand, Customer.

Performance Analysis of Variable Compression Ratio Engine fuelled with Linseed Biodiesel

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Abstract: In this present research work, Linseed oil biodiesel-diesel fuel blends as alternative fuels for diesel engines were studied. An experimental investigation has been carried out to evaluate the performance characteristics of a diesel engine fuelled with Linseed oil biodiesel and its blends (10%, 15% and 20%). The performance parameters analysed include brake power, brake thermal efficiency, and brake specific fuel consumption. There sults of the experiment in each case were compared with base line data of neat diesel fuel. Significant improvements have been observed in the performance parameters of the engine. It concluded that B10 blend of Linseed oil biodiesel act as best alternative fuel among all tested fuel at full load condition. This research investigates the scope of utilizing Linseed oil as an alternative diesel fuel.
Keywords: Variable compression ratio engine, Biodiesel, Linseed oil, Performance parameters.