NATIONAL CONFERENCE

On

ADVANCEMENT IN
APPLIED SCIENCE AND ENGINEERING
NCAASE- 2020

SOUVENIR

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In Association with

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(Approved By: DCE Rajasthan, Affiliated To: MGSU, Bikaner)

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NATIONAL CONFERENCE ON ADVANCEMENT IN APPLIED SCIENCE AND ENGINEERING

(NCAASE- 2020)

February 7th -8th, 2020

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Mrs. Anshumala Sharma

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7th - 8th February 2020

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NCAASE- 2020
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D- 123 Jaipur, Date : 30/01/2020

MESSAGE

It gives me immense pleasure to write a message for the National Conference on Advances in Applied Sciences and Engineering being held in the beautiful city of Bikaner on 7-8 Feb, 2020. I hope the conference will witness enthusiastic participation of academicians across Nation resulting in productive outcomes in the field of Science and Technology.

It is a matter of great satisfaction that the Institute is doing good services to the nation by training young students. I applaud the efforts of stakeholders in taking the institute towards academic excellence.

Best wishes for successful organization of the event as well as the Souvenir planned on the occasion.

(Dr. B. D. Kalla)
Minister

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MESSAGE

It is heartening to know that the MITS is going to organize a national conference on the advancement in applied sciences and engineering on 7 - 8th February, 2020 at MITS campus.

The objective of the conference is to create awareness about the recent developments and researches being conducted across the nation.

I am confident that the participation of scientists, research scholars, academicians and students under one roof will prove to very beneficial

I would like to extend my best wishes for the success to this event.

Bhanwar Singh Bhati

Message

It is a matter of great pleasure that Manda Institute of Technology, Bikaner is going to organize an National Conference on "Advancement in Applied Science and Engineering (NCAASE-2020) on 07th and 08th February,2020.

I hope the National Conference NCAASE-2020shall be very useful for delegates to aware with recent advances in technology, trends, practical challenges encountered and the solutions adopted in the field of Applied Science, and Engineering.

I wish the great success of the conference.

(Prof. H.D. Charan)
Vice Cha

RAJASTHAN TECHNICAL UNIVERSITY, KOTA

Rawatbhata Road, Akelgarh, Kota-324 010

Prof. R. A. Gupta
Vice Chancellor

No.RTU/VCS/F(1)26/2020/

Date 30-1-2020

MESSAGE

I am glad to know that the Manda Institute of Technology, Bikaner is going to organize National Conference on " Advancement in Applied Science and Engineering" on February 7-8, 2020.

The applied science is a vast area which is the integration and sumtotal of many departments which includes agronomy, animal husbandry, agriculture, Mariculture, food science, food technology, medicine, bioengineering, Nanoscience, biotechnology, electrical technology etc. In view of rapid changes in these disciplines, I am sure that this conference will provide an opportunity to the participants to update their knowledge and skills.

I convey my best wishes for grand success of the conference.

(Prof. R. A. Gupta)

MESSAGE

It gives me an immense pleasure to know that Manda Institute of Technology, Bikaner in association with Manda College, Bikaner (both run by Manda Institute of Technology Society, Bikaner) is organizing a **"National Conference on Advancement in Applied Science and Engineering"** (NCAASE -2020) on February, 7-8, 2020 at Bikaner, Rajasthan.

I congratulate all the engineering fraternity for creating this multidisciplinary forum for leading Academicians, Scientists, Industrial Delegates and Research Scholars to discuss, exchange and share the recent technological innovations, trends and thoughts in the field of Engineering and Applied Sciences in order to ascertain the solutions of challenges of present scenario.

My best wishes for the grand success of the event.

(Dr. Yadunath Singh)
Director, Academic Affairs
Bikaner Technical University, Bikaner

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MESSAGE

I am happy to learn that the Manda Institute of Technology is organizing the National Conference on Advances in Applied Sciences and Engineering on 7-8 Feb,2020. I am sure that the theme of the Conference will ignite the minds of the research scholars and academicians; and discover new dimensions of doing business, fostering the growth, happiness and development of our nation.

It is important to develop an attitude towards research and evidence building in scientific sphere and this conference would be a major step towards this goal in the field of science and technology.

I extend my best wishes to the organizers and participants for success of the conference.

(Dr. Jaiprakash Bhamu)
Principal
Engineering College Bikaner

BIKANER TECHNICAL UNIVERSITY, BIKANER
बीकानेर तकनीकी विश्वविद्यालय, बीकानेर

Dr. S.K. Bansal
B.Tech, M.Tech (Hons), Ph.D. (Engg.),
FIE (I), MIEE (USA)
Dean, Faculty of Engg. & Architecture

Message

It is the matter of immense pleasure that he Manda Institute of Technology, Raisar, Bikaner in association of Manda College, Bikaner is organizing "**National Conference on Advancement in Applied Sciences and Engineering**" on February 7th - 8th, 2020.

I hope that this conference will surely provide a multidisciplinary platform to leading academicians, scientists, industrial delegates and research scholars to confer the most recent advancements in renewable energy, Climate change and Bio Diversity, Artificial Intelligence, trends, practical challenges encountered and the solutions adopted in the field of engineering and applied sciences.

I congratulate the team of organising committee for planning **National Conference on Advancement in Applied Sciences and Engineering** and convey my best wishes for successful completion of the conference.

(Dr. S.K. Bansal)
Dean, FOEA

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Shri Ram Gopal Manda
Chairman, MITS, Bikaner

Message

I am very heartened to know that Manda Institute of Technology, Bikaner in association with Manda College, Bikaner is hosting a relevant, inspiring and enlightening event NCAASE- 2020. I learn that many technocrats, educationalists and academic personnel from various levels are involved in this National Conference on "advancement in applied science and engineering" on 7th -8th February 2020 to exchange their experiences in the respective domain. This technical programme brings together academic luminaries.

A conference of this magnitude and importance requires the dedication and effort of remarkably talented individuals. I take this opportunity to congratulate the MITS fraternity for having devoted their time to ensure that the preparations for the smooth conduct of the programme are done properly. I wish the organizing committee, the very best in their endeavor and my best wishes to all the participants and delegates.

Wish the conference a grand success.

(Ram Gopal Manda)

Mrs. Suman Choudhary
Secretary, MITS, Bikaner

Message

I am extremely happy to know that Manda Institute of Technology, Bikaner in association with Manda College, Bikaneris organizing a National conference on "advancement in applied science and engineering" on 7th – 8th, February 2020. This conference would definitely be an inspiration and motivation for the students and faculty to enhance their knowledge in the field of Renewable Energy. Researchers from various streams of Science and Engineering will be sharing their research work in the conference. More over technical talks by well-known resource persons and interaction with students will give them knowledge about the present trends.

I congratulate the organizing committee for organizing this conference and I wish all the success for their future endeavors. This conference gives them the experience and motivation to conduct an International conference.

Greetings from MITS, Bikaner

(Suman Choudhary)

Dr. R. K. Beniwal

Director Academics, MIT, Bikaner

Message

I am pleased to inform that a joint initiative has been taken by Manda Institute of Technology, Bikaner and Manda College; Bikaner is organizing a National Conference on "advancement in applied science and engineering" from 7th -8th, February 2020 at Manda Institute of Technology Society Campus.

We are also happy to share that we have received abstracts from so many Scientists working in the allied areas from various states as on today. I would like to express my appreciation to the coordinators, for their effort, in organizing the conference which is of National relevance. I hope this conference NCAASE- 2020 will be enjoyable, memorable and productive for the participants and looking forward to further technological events those results from your networking and discussions.

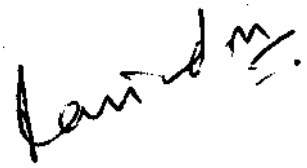
I wish The Event All Success.

(**Dr. R. K. Beniwal**)

Prof. (Dr). RavindraPrakash Gupta
Principal, MIT, Bikaner

Message

I'm happy to learn that academicians, scientists, senior scholars, teachers and student across country have come forward enthusiastically to participate in National Conference on "advancement in applied science and engineering" going to be organized on 7th -8th , February 2020 . The conference will serve as a as a multi-disciplinary platform to discuss the advances, science and engineering and trends in the various field of science and engineering. I am sure that the combined efforts of the whole organizing team of the conference will surely bring this conference a great success.



Prof. (Dr) Ravindra Prakash Gupta

Dr. Bela Bhanot
Principal, Manda College, Bikaner

Message

It is a matter of immense delight that MITS is organizing national conference. The conference shall certain provide a common platform in bringing to gather various group of researchers to interact discuss and exchange their views.

I hope this conference with the active participation of teacher, scientists, technologists and scholars engaged in the field of science and technology will prove a mile-stone.

Dr. Bela Bhanot

Er.Hardayal Singh

Principal, Manda Private ITI, Bikaner

Message

It gives me immense pleasure to know that Manda Institute of Technology and Manda College, is organizing National Conference on "advancement in applied science and engineering" on 7th -8th February 2020. The theme of the Conference is of great relevance and I hope a large number of academicians, Scholars, technologies and researches from all over the country will deliberate on issues related to the subject. The Organizing committee of the conference deserves my Congratulation for this applauds able initiative and the efforts they are putting into make it a grand success.

I humbly wish for the greater successes of the confidence efforts made in this direction are highly appreciated.

(Hardayal Singh)

Dr. Narpat Ram Sangwa
Vice Principal, MIT, Bikaner

Message

I welcome the participants of NCAASE- 2020. The main goal of organizing this conference is to share and enhance the knowledge of each and every individual in this applied science and engineering world. We have given a good opportunity for those who have a thirst in knowing the present technological developments and also share their ideas. Furthermore, this conference will also facilitate the participants to expose and share various novel ideas. The conference aims to bridge the researchers working in academia and other professionals through research presentations and keynote addresses in current technological trends. It reflects the growing importance of intelligent applied science and engineering as a field of research and practice. You will get ample opportunities to widen your knowledge and network. Outside of the conference, I hope that you would/will enjoy some of the many attractions found in and around our beautiful campus Manda Institute of technology, Bikaner. Such a large conference event is the culmination of many individuals.

I thank the conference committee for extending their valuable time in organizing the program and all the authors, reviewers, and other contributors for their sparkling efforts and their belief in the excellence of NCAASE- 2020.

Narpat Sangwa

(Dr. Narpat Ram Sangwa)
Convener, NCAASE- 2020

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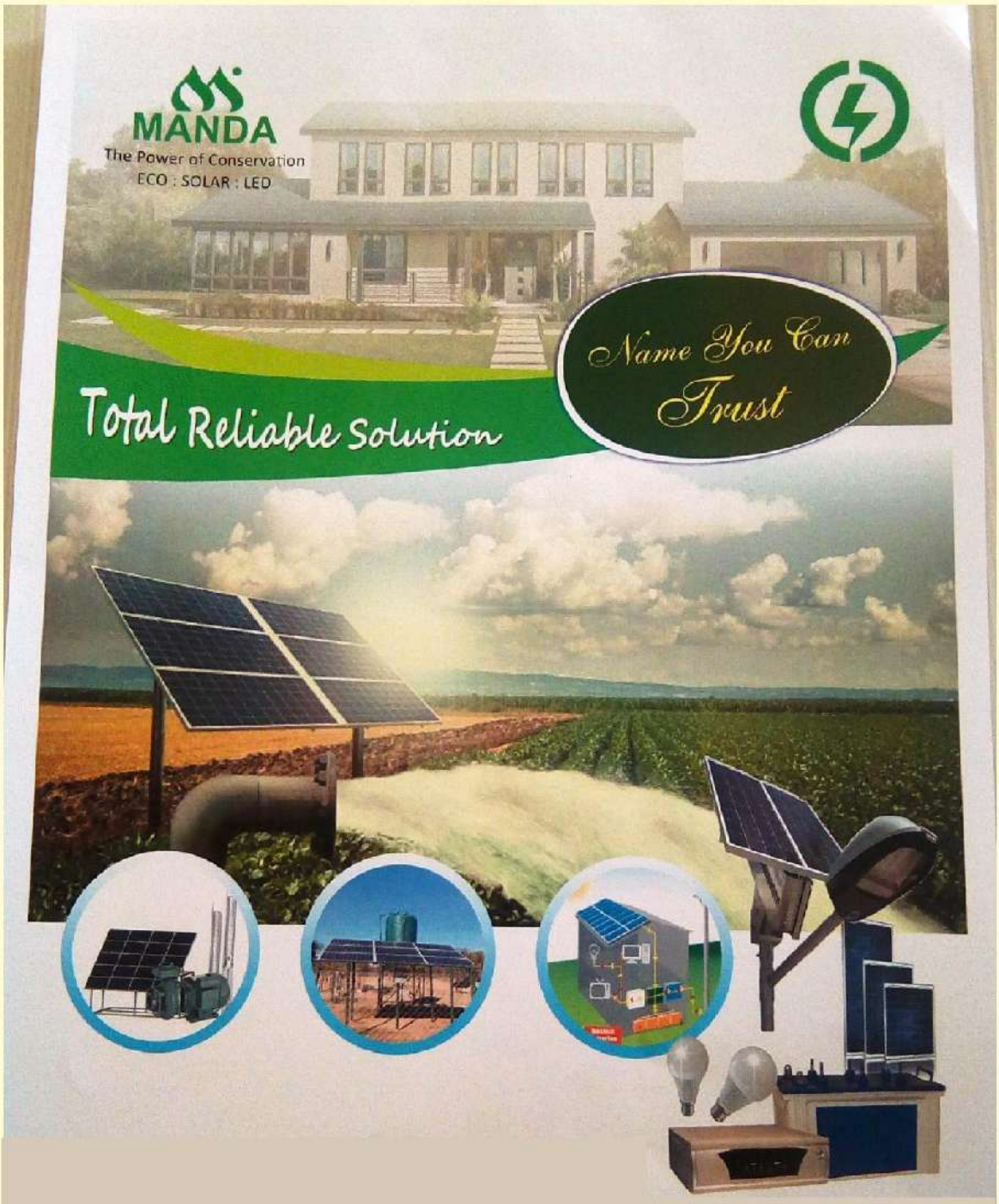

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Oral Presentations

OP-1: CLIMATE CHANGE AFFECTS BIODIVERSITY

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Abstract: There is ample evidence that climate change affects biodiversity. According to the Millennium Ecosystem Assessment, climate change is likely to become one of the most significant drivers of biodiversity loss by the end of the century. Climate change is already forcing biodiversity to adapt either through shifting habitat, changing life cycles, or the development of new physical traits. Conserving natural terrestrial, freshwater and marine ecosystems and restoring degraded ecosystems (including their genetic and species diversity) is essential for the overall goals of both the Convention on Biological Diversity and the United Nations Framework Convention on Climate Change because ecosystems play a key role in the global carbon cycle and in adapting to climate change, while also providing a wide range of ecosystem services that are essential for human well-being and the achievement of the Millennium Development Goals. Biodiversity can support efforts to reduce the negative effects of climate change. Conserved or restored habitats can remove carbon dioxide from the atmosphere, thus helping to address climate change by storing carbon (for example, reducing emissions from deforestation and forest degradation). Moreover, conserving in-tact ecosystems, such as mangroves, for example, can help reduce the disastrous impacts of climate change such as flooding and storm surges.

Keywords: *Ecosystem, biodiversity, climate etc.*

OP-2: TO IMPLEMENT C PROGRAMMING FOR SOLVE SOME TRANSPORTATION PROBLEM USING COMPUTATION PERFORMANCE

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Abstract: The aim of this paper we are developing a c programming to solve some transportation problem using computational techniques. In this article we are solve some transportation problem with the help of Computational Technique. The Computational Techniques method is better for solving Transportation Problem (TP). The model gives a very good result in Transportation problem (TP).

Keywords: Computaional; TP; Cost; Techniques etc**.**

OP-3: LOW COST MICROSTRIP PATCH ANTENNA FOR TRANSMISSION LINE MODEL WITH WIRELESS COMMUNICATION

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Abstract: The aim of this paper is to design antennas that are suitable for the multiband and wideband communication systems. Before the design work, it is essential to know about the basics of antenna theory. Some important parameters that are essential to design the antenna are discussed in this paper. Some general approaches used to achieve wide operating bandwidth of microstrip antenna are also presented.

Keywords: *Antenna; Bandwidth; microstrip etc.*

OP-4: ADVANCEMENT OF PRODUCTIVITY BY PROVIDING CONVENIENT WORKING ENVIRONMENT FOR OPERATORS

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Abstract: This paper is focused on the workplace environment in hot zone and how it affects the health of workers. Health can affect worker's productivity and performance and decrease due to poorly planned workplace environment as this adversely affects their morale and may give rise to lack of motivation and decrease in job satisfaction as a result. There are lots of factor that will affect the working environment of operators like noise, ventilation, regular and good remuneration, internet facility, good library, regular promotion, communication flow, convenient working environment. Above said factor that will affect the spirit and morale of employees/ operators. In order to mitigate the effect of temperature in steel industry and directly and indirectly effect of production and rejection in steel industry due to temperature and attendance of employee in different whether this paper has been carried out.

Keywords: *Productivity; Performance and Working Environment etc.*

OP-5: GENERALIZED FRACTIONAL CALCULUS OPERATOR OF p-EXTENDED τ-HYPERGEOMETRIC FUNCTION

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Abstract: In this present paper, we establish generalized fractional calculus operators involving Appell function F3 of the p-extended τ-hypergeometric function. The result is obtained in terms of hadmard product of p-extended τ-hypergeometric function and Fox-Wright function pψq[z]. Special cases are derived for Saigo's hypergeometric, Riemann–Liouville and Erdely-Kober fractional operator.

Keywords: *p-extended Beta function, p-extended τ-hypergeometric function, Fox-Wright function pψq[z], fractional calculus operators etc.*

OP-6: SYNTHESIS OF Co(II) METAL COMPLEXES BY GREEN METHOD

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Abstract: In this research paper transition metal complexes synthesis, spectra, characterisation and antimicrobial studies of Cobalt (II) complexes with amide derivatives ligands have beenreported. Physicochemical analysis, infrared, electronic spectra and magnetic susceptibility studies have been used for characterisation. Antibacterial studies of these amide ligand derivatives and its Co(II) metal complexes have also been reported. These complexes show UV bands in region about 11376 cm-1 to 26315 cm-1 and tentative assignment4T1g(F)→4T2g(F),4T1g(F)→4A2g(F),4T1g(F)→4T1g(P) transitions. Cobalt (II) transition metal complexes have been concluded octahedral environment with magnetic moment 3.87 BM. The synthesis method is microwave forthe transition metal complexes have been found easier, convenient eco-friendly and sustainable.

Keywords: *Cobalt (II), Microwave, antimicrobial and Pyrimidine derivative.*

OP-7: DESIGN OF A VERTICAL WIND TURBINE TO POWER LED STREET LIGHTS

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Abstract: Wind turbines and street lights are two expensive free standing structures which can benefit from each other. The light poles are similar to the poles used to place wind turbines in the air. A design to attach a wind turbine to an existing light pole to help power the light would be an environmentally friendly way to reduce costs of powering a street light. The turbine should be small, weighing around 50 pounds. The production cost of the turbine is intended to be below $1000. The turbine will use net metering to the grid to store the energy rather than storing it in a battery. The turbine will be 1 meter in diameter and 1.5 meters in height to reach the requirements it must satisfy. It will have two arms that clamp to existing light posts. The cut in wind speed for the turbine will be 2 m/s while spinning at 150 rotations per minute. At the optimal level, the turbine will be able to produce 50% of the wattage to power an LED street light saving the government around $100 per street light per year.
The proposed idea for a wind turbine attaching to existing light posts will allow cities to cut back on wattage used, at a low cost.
The city of Boston is currently moving towards the implementation of LED street lights, which opens a perfect window for the production of small wind turbines to power street lights. The wattage needed by an LED street light is significantly smaller than that of a regular light, and can be achieved by wind turbines that attach to existing light posts.

Keywords: *LED street light, Wind turbines etc.*

OP-8: PV-STATCOM: A SMART INVERTER FOR VOLTAGE CONTROL IN DISTRIBUTION SYSTEMS

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Abstract: This paper presents a smart inverter PV-STATCOM in which a photovoltaic inverter can be controlled as a dynamic reactive power compensator-STATCOM. The proposed PV-STATCOM can be utilized to provide voltage control during critical system needs on a 24/7 basis. In the night-time, the entire inverter capacity is utilized for STATCOM operation. During a critical system disturbance in the daytime, the smart inverter discontinues its real power generation function temporarily (for about a few seconds), and releases its entire inverter capacity for STATCOM operation. Once the disturbance is cleared and the need for grid voltage control is fulfilled, the solar farm returns to its predisturbance real power production. The low voltage ride through (LVRT) performance of the PV-STATCOM is demonstrated through both EMTDC/PSCAD simulations and laboratory implementation using dSPACE control. This proposed PV-STATCOM with a response time of 1-2 cycles can provide an equivalent service as an actual STATCOM in a given application and possibly seek revenues for providing this service.

Keywords: Inverter; Voltage control; Distributed power generation; STATCOM etc.

OP-9: ADVANCES IN SOLAR PHOTOVOLTAIC SYSTEMS

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Abstract: This paper presents a comprehensive review on the solar photovoltaic (SPV) systems for advanced applications in the present and future scenario. Literature shows that the efficiency of photovoltaic (PV) systems is lies in the range of 10% to 23%. Thus, the efficiency is the important factor which must be improved further for the best implementation and utilization of this emerging and useful technology around the globe. However, among all the applications, Building integrated photovoltaics (BIPV), Concentrated photovoltaics (CPV) and photo-voltaic thermal (PV/T) are found to be the most technically sound and exhibit that SPV may be a solution for the future energy challenges. BIPV system reduces the area requirement as well as cuts the material and infrastructure costs of the building and hence, fulfills the technical thrust for smart building requirements. Recently developed CPV cells are found to be feasible, most promising and cost effective technology having higher efficiency and lesser material requirements than those of the other solar cells. On the other hand, as the PV/T systems produce not only the electricity but also the heat energy are found to be more useful, suitable, and promising for most of the real life applications especially, where both forms of energy are required simultaneously.

Keywords: *SPV; PV; CPV; BIPV; PV/T etc.*

OP-10: TRANSIENT THERMOELASTIC PROBLEM OF A FINITELENGTH HOLLOW CYLINDER IN SUMUDU AND LAPLACE TRANSFORM FOR SOLVING PARTIALDIFFERENTIALEQUATION

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Abstract: In this Paper an attempt is made to solve the Problem of thermoelasticity, an attempt is made to determine the unknown temperature, displacement and stress functions of a finite length hollow cylinder occupying the space D: $a \le r \le b$, $0 \le z \le h$by applyingSumudu and Laplace Transform techniques

Keywords: *Hollow cylinder; unsteady state Problem; thermoelastic Problem; sumuduand Laplace transforms etc.*

OP-11: IMPROVED PROMOTION STRATEGIES OF SMART PHONE MARKETING COMPANIES

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Abstract: The mobile phone industry has entered the era of smart phones; consumers now have quite different views and demands of mobile devices. To achieve the above objective I have not restricted my study to just Marketing strategies of smart phones. In order to study about the smart phone business in India, and to understand the scope that Marketing of smart phone has in this business, I have extended to do a detailed study of Smart phone market of the other competitors smart phone companies. In this study we are presenting a business growth by promotion strategies of smart phone in Indian market. Use of modern smart phone has been ever increasing and has reached metros, urban cities and is slowly reaching Indian villages. The aim of this paper improved promotion strategies of mobile marketing companies.

Keywords: *Phone; Market; Promotion; Growth; Business etc.*

OP-12: A COMPARATIVE STUDY BETWEEN VARIOUS SOFTWARE PROCESS MODELS IN SOFTWARE DEVELOPMENT

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Abstract: In this paper we are conducting a comparison between software development and process model approaches, i.e. sequential, incremental, evolutionary, specialized and agile approach). In this paper complete these models, as well as, it compares and contrasts between these different models. Software development and process model consists of document and planning and it contains a collection. It is established to be a part of software engineering procedures. Moreover, the goal of software engineering is to make a suitable working product and construct the programs of high quality. Software methods (also called software process methodology) can a set of connected activities that end up in the assembly of the software process. An example of each approach is considered – Waterfall model (sequential approach), Incremental Model (incremental approach), Spiral Model (evolutionary approach), Formal Methods Model (specialized approach), Extreme Programming Model (agile approach) and RUP.

These activities might involve the event of the software process from the scratch, or, modifying associate existing system. There are several models for such processes, each describing approaches to a variety of activities that take place during the process.

Keywords: *Software; Process Model; Waterfall Model etc.*

OP-13: COMPARED PROACTIVE, REACTIVE AND HYBRID TBRPS OF ROUTING PROTOCOL FOR VEHICULAR MOBILE AD HOC NETWORKS

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Abstract: The main aim of this paper was to identify which ad hoc routing protocol has better performance in highly mobile environment of vehicular ad-hoc network and to give a survey of the VANETs routing Scenario, Vehicular ad hoc networks (VANETs), the existing VANET routing protocols and the exiting two mobility Models. VANETs, investigates different routing schemes that have been developed for VANETs, and providing classifications of VANET routing protocols within two classification forms and gives summarization. There is no static infrastructure. Vehicular Ad hoc networks (VANETs) are a special type of mobile ad hoc networks in which vehicles are simulated as mobile nodes. VANET contains two accesses: access points and vehicles, the access points are fixed and generally connected to the internet. Each protocol has different behavior in relation to performance metrics considered, including the rate of routing packets sent, delay, and the debit. The VANETs (Vehicular Ad hoc Networks) are a new form of mobile ad hoc networks used to establish communications between vehicles or with infrastructure located on roadsides. In a VANET network routing is an important mechanism for finding and maintaining a communication path between a pair of remote nodes. A Vehicular Ad hoc Network (VANET) consists of vehicles which communicate with each other and exchange data via wireless communication links available between the vehicles which are in communication ranges of vehicles to improve the road safety in city. The communication between vehicles is used to provide road safety, comfort and entertainment. VANET consists of a collection of wireless mobile nodes that are dynamically connected and can communicate with each other without the requirement for any pre-existing or centralized infrastructure.

Keywords: *VANET; Network; Path; Packet; Nodes etc.*

OP-14: MOBILE COMMUNICATION NETWORK

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Abstract: Mobile communication network is the improved communication method that provides high speed communication. The Mobile WIMAX communication provides the high speed video communication along with quality of service, lack of reproducibility and reliability over the transmission medium. This Mobile communication has replaced the existing high speed communication technology with new technological formation. In private networks where high speed communication is required, the WIMAX communication under Mobile is able to provide such higher performance communication. This network can be adopted for telephone lines, video networks all can be connected through Mobile WIMAX networks.

Mobile WIMAX is the fast, inexpensive and easily deployed communication spectrum system which does not requires any frequent licensing.This communication system also adopted by various communication technologies. This communication system is provided by for local and global networks. The challenge in this technology is to provide the performance in seamless handoff situations. As the distance increases and the network is required to switch between the areas, the reliability of communication affects. On a standard estimation, most of the communication loss is performed during the handoff or the switching among the network. These network models provide effective utilization of network resources and bandwidth. These networks basically applied with authentication scenario so that the only valid license user can communicate to the network. Such kind of deployed wireless links are comparatively faster and less expensive. These links are significant to the radio communication and provides the Gbit/s communication rate. But these open space communication also suffers from some of environmental impurities.In this work, the most critical communication model called handoff is resolved by reducing the communication loss and communication delay.

Keywords: *WiMAX etc.*

OP-15: CLASSIFICATION AND CLUSTERING-USING INTELLIGENT TECHNIQUES

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Abstract: Analysis and interpretation of DNA Microarray data is a fundamental task in bioinformatics. Feature Extraction plays a critical role in better performance of the classifier. We address the dimension reduction of DNA features in which relevant features are extracted among thousands of irrelevant ones through dimensionality reduction. This enhances the speed and accuracy of the classifiers. Principal Component Analysis (PCA) is a technique used for feature extraction which helps to retrieve intrinsic information from high dimensional data in eigen spaces to solve the curse of dimensionality problem. First, we implement PCA for significant feature extraction and then FFNN trained using Backpropagation (BP) and SVM are implemented on the reduced feature set. Next, we propose a Multiobjective Genetic Algorithm-based fuzzy clustering technique using real coded encoding of cluster centers for clustering and clas- si cation. This technique is implemented on microarray cancer data to select training data using multiobjective genetic algorithm with non-dominated sorting (MOGA-NSGA-II). Finally, the four clustering label vectors through majority vot- ing ensemble are combined, i.e., each point is assigned a class label that obtains he maximum number of votes among the four clustering solutions. The performance of the proposed MOGA-SVM, classification and clustering method has been compared to MOGA-BP, SVM, and BP...The experiment was carried on three public domain cancer data sets, viz., Ovarian, Colon and Leukemia cancer data to establish its superiority.

Keywords:- *Cancer Classification; Feature Reduction; Multiobjective genetic al- gorithm; Neural Network; Pareto-optimality; Principal components; Support Vec- tor Machine(SVM) etc.*

OP-16: HYBRID RENEWABLE ENERGY TURBINE USING WIND AND SOLAR POWER: A RENEWABLE SOURCE OF ENERGY SCENERIO IN INDIA

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Abstract: An environmentally friendly combination of wind turbine and solar energy collectors are provided. Solar photovoltaic material is secured to the surface of the wind turbine tower to augment the power generation capability of a wind turbine.

The wind turbine energy output is controlled by a power management program and may be combined with the solar power energy that is generated from solar photovoltaic material covering the surface area of the body of the wind turbine's tower through an electrical subsystem associated with the wind turbine, an electrical subsystem associated with the solar energy collection system, and a combination subsystem conductively coupled both the electrical subsystem associated with the wind turbine and the electrical subsystem associated with the solar energy collection system.

Keywords: *Solar Energy Collectors, Solar Photovoltaic, Solar Energy Collection System etc.*

OP-17: STUDY OF 4 WHEEL STEERING SYSTEMS TO REDUCE TURNING RADIUS AND INCREASE STABILITY

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Abstract: In the present era of machined world where most of the work is carried out with help of machines. Vehicles or automobile plays a vital role in human life providing faster transporting facilities to them. Nowadays, the every vehicle existed mostly still using the two wheel steering system to control the movement of the vehicle whether it is front wheel drive, rear wheel drive or all wheel drive. But due to the awareness of safety, four wheel steering vehicles are being used increasingly due to high performance and stability that they bring to the vehicles. In this report, the performance of four wheels steered vehicle model is considered which is optimally controlled during a lane change maneuver in three type of condition which is low speed maneuver, medium speed maneuver and high speed maneuver. Four-Wheel Steering – Rear Wheels Control. For parking and low-speed maneuvers, the rear Wheel steer in the opposite direction of the front wheels, allowing much sharper turns. At higher speeds, the rest wheels steer in the same direction as the front wheels. The result is more stability and less body lean during fast lane changes and turns because the front wheels don't have to drag non-steering rear wheels onto the path.

Keywords: *Vehicle, Wheel Steering, Non-Steering etc.*

OP-18: INVESTIGATIONS ON QUALITY OF WATER IN BIKANER CITY

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Abstract: Water distinguishes our planet compared to all the others we know about. While the global supply of available freshwater is more than adequate to meet all current and foreseeable water demands, its spatial and temporal distributions are not. There are many regions where our freshwater resources are inadequate to meet domestic, economic development and environmental needs. In such regions, the lack of adequate clean water to meet human drinking water and sanitation needs is indeed a constraint on human health and productivity and hence on economic development as well as on the maintenance of a clean environment and healthy ecosystems. All of us involved in research must find ways to remove these constraints. We face multiple challenges in doing that, especially given a changing and uncertain future climate, and a rapidly growing population that is driving increased social and economic development, globalization, and urbanization. There are several steps of water quality monitoring one is the determination of hardness Excessive hardness of water is a major problem. This paper deals with the investigations on quality of water via determination of hardness in the samples collected from different areas of Bikaner city. Results of this study reveal that it is customary to collect rainwater via rainwater harvesting system at all houses and educational institutes, like at Govt Dungar College, we have such system. This not only increases the water table in earth but it also helps to cater the needs of safe and clean water.

Keywords: *Globalization; Urbanization; Rainwater Harvesting System etc.*

OP-19: INTELLIGENT VARIABLE VALVE TIMING

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Abstract: The most important challenge facing car manufacturers today is to offer vehicles that deliver excellent fuel efficiency and superb performance while maintaining cleaner emissions and driving comfort. This paper deals with I-VTEC (intelligent-Variable valve Timing and lift Electronic Control) engine technology which is one of the advanced technology in the IC engine. I-VTEC is the new trend in Honda's latest large capacity four cylinder petrol engine family. The name is derived from 'intelligent' combustion control technologies that match outstanding fuel economy, cleaner emissions and reduced weight with high output and greatly improved torque characteristics in all speed range. The design cleverly combines the highly renowned VTEC system - which varies the timing and amount of lift of the valves - with Variable Timing Control. VTC is able to advance and retard inlet valve opening by altering the phasing of the inlet camshaft to best match the engine load at any given moment. The two systems work in concern under the close control of the engine management system delivering improved cylinder charging and combustion efficiency, reduced intake resistance, and improved exhaust gas recirculation among the benefits. I-VTEC technology offers tremendous flexibility since it is able to fully maximize engine potential over its complete range of operation. In short Honda's I-VTEC technology gives us the best in vehicle performance.

Keywords: *I-VTEC; VTC etc*

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OP-20: LOAD BALANCING IN MANET: ALLEVIATING THE CENTER NODE

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Abstract: Load balancing is an essential requirement of any multi-hop wireless network. A wireless routing protocol is accessed on its ability to distribute traffic over the network nodes and a good routing protocol achieves this without introducing un- acceptable delay. The most obvious benefit is manifested in increasing the life of a battery operated node which can eventually increase the longevity of the entire network. In the endeavor of finding the shortest distance between any two nodes to transmit data fast the center nodes become the famous picks. The centrally located nodes connect many subnetworks and serve as gateways to some subnetworks that become partitioned from the rest of the network in its absence. Thus, the lifetime of the center nodes become a bottleneck for connectivity of a subnetwork prior to its partition from the rest of the network. An unbiased load can cause congestion in the network which impacts the overall throughput, packet delivery ratio and the average end to end delay. In, this thesis we have mitigated the unbiased load distribution on centrally located nodes by pushing traffic further to the peripheral nodes without compromising the average end to end delay for a greater network longevity and performances. We proposed a novel routing metric, load and a minimization criterion to decide a path that involves nodes with less load burden on them. The simulations of the proposed mechanism run on NS-2.34 for 16 and 50 nodes have revealed an average 2.26% reduction of load on the center node in comparison with AOMDV.

Keywords: *Routing Protocol, Wireless Routing Algorithm, Improving performance of MANET etc.*

OP-21: CLIMATE CHANGE AND BIODIVERSITY

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Abstract: In the atmosphere, greenhouse gases act like the glass roof of a greenhouse by trapping heat and warming the planet. As a result, the Earth's surface and lower atmosphere are warming, and this rise in temperature is accompanied by many other changes. According to the Intergovernmental Panel on Climate Change (IPCC) Working Group I (WGI) Fourth Assessment Report, from 1850 to 2005, the average global temperature increased by about 0.76°C and global mean sea level rose by 12 to 22 cm during the last century. These changes are affecting the entire world, from low-lying islands in the tropics to the vast Polar Regions. Climate change predictions are not encouraging; according to the IPCC WGI Fourth Assessment Report, a further increase in temperatures of 1.4°C to 5.8°C by 2100 is projected. Predicted impacts associated with such temperature increase include: a further rise in global mean sea level, changes in precipitation patterns, and more people at risk from dangerous "vector-borne diseases" such as malaria. The present global biota has been affected by fluctuating Pleistocene (last 1.8 million years) concentrations of atmospheric carbon dioxide, temperature, precipitation, and has coped through evolutionary changes, and the adoption of natural adaptive strategies. Habitat fragmentation has confined many species to relatively small areas within their previous ranges, resulting in reduced genetic variability. Warming beyond the ceiling of temperatures reached during the Pleistocene will stress ecosystems and their biodiversity far beyond the levels imposed by the global climatic change that occurred in the recent evolutionary past. Current rates and magnitude of species extinction far exceed normal background rates. Human activities have already resulted in the loss of biodiversity and thus may have affected goods and services crucial for human well-being. The rate and magnitude of climate change induced by increased greenhouse gases emissions has and will continue to affect biodiversity either directly or in combination with other drivers of change.

Keywords: *Greenhouse gases, Climate Change, Biodiversity.*

OP-22: DESIGN OF A VERTICAL WIND TURBINE TO POWER LED STREET LIGHTS

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Abstract: Wind turbines and street lights are two expensive free standing structures which can benefit from each other. The light poles are similar to the poles used to place wind turbines in the air. A design to attach a wind turbine to an existing light pole to help power the light would be an environmentally friendly way to reduce costs of powering a street light. The turbine should be small, weighing around 50 pounds. The production cost of the turbine is intended to be below $1000. The turbine will use net metering to the grid to store the energy rather than storing it in a battery. The turbine will be 1 meter in diameter and 1.5 meters in height to reach the requirements it must satisfy. It will have two arms that clamp to existing light posts. The cut in wind speed for the turbine will be 2 m/s while spinning at 150 rotations per minute. At the optimal level, the turbine will be able to produce 50% of the wattage to power an LED street light saving the government around $100 per street light per year.
The proposed idea for a wind turbine attaching to existing light posts will allow cities to cut back on wattage used, at a low cost.
The city of Boston is currently moving towards the implementation of LED street lights, which opens a perfect window for the production of small wind turbines to power street lights. The wattage needed by an LED street light is significantly smaller than that of a regular light, and can be achieved by wind turbines that attach to existing light posts.

Keywords: *Wind turbine, LED etc.*

OP-23: THE EFFECTS OF ORGANIZATION STRUCTURE ON JOB SATISFACTION

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Abstract: The level of job satisfaction and effectiveness of each human depends on an appropriate organization structure; the form of organization structure is the prescribed pattern of work-related behavior that is intentionally established for the achievement of organizational goals. During the past decade, there has been a lot of discussion in the corporate world, about organizational structure, and a lot of organizational success and job satisfaction by the employee that is associated with that structure. The aim of this paper we are studding on the effects of organization structure on employee. There is a significant relationship between organizational structure and effectiveness, and there is no significant relationship between mechanistic structure and effectiveness. The main target of this study is to understand the organizational behavior, various techniques and ingredients that constitute it and finally to bring out their effects on employees and their job satisfaction. Data for the study were obtained from both primary and secondary sources. A total of 335 questionnaires out of 3711 executives of leading banks were randomly administered in select banks. However, only 280 of the administered questionnaires were filled out and returned and 259 questionnaires were found useful for data analysis.

Keywords: *Satisfaction; Effectiveness; Relationship; Organization etc.*

OP-24: DETERMINATION OF POTASSIUM BROMATE IN BREAD SAMPLES FROM FIVE PLACES IN BIKANER CITY

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Abstract: It has been found time and again that processed and packaged food contains additives and chemicals that are outright harmful to human health.Bread that is the most common processed breakfast food, has a suspected tumor-causing additives, potassium bromate and potassium iodate in it. It is used to strengthen bread dough and most leading brands of bread use this ingredient intheirproducts. There are several brands of bread in India that use potassium bromate in their products.According to CSE, potassium bromate typically increase dough strength, lead to higher rising and uniform finish to baked products while potassium iodate is a flour treatment agent.

In this paper report of analysis of bread samples is presented. All the bread samples were collected from five different places in Bikaner city. The samples were analyzed by UV-Vis spectrophotometer for potassium bromate (KBrO3). The content of potassium bromate in different breads range from 5.615 -9.974mg/kg (mean 8.100mg/kg). The level of KBrO3 was found to be 281 to 499 times more than the permissible limit set by FDA, which is highly toxic for consumers. A significant differences were found in the potassium bromate levels of bread samples from different bakeries ($P<0.05$).

Keywords: *Packaged Food; Spectrophotometer; Flour Treatment Agent etc.*

OP-25: ARP SPOOFING: A COMPARATIVE STUDY FOR EDUCATION PURPOSES

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Abstract: ARP spoofing attack, one of the most important security topics, is usually taught in courses such as Intrusion Detection in Local Area Networks (LANs). In such a course, hands-on labs are very important as they facilitate students' learning on how to detect ARP spoofing using various types of security solutions, such as intrusion detection and prevention systems (IDS/IPS). The preparation of these hands-on labs are usually the task of Security Instructors who are required to select and use efficient security solutions for their hands-on experiments; the problem that presents itself is that most of these security instructors lack the sufficient hands-on experience and skills. For this reason and because of the diversity of the available security solutions, the security instructors are having much difficulty when selecting the adequate security solutions for their hands-on labs. Our analysis provides means for security instructors to evaluate and select the appropriate security solutions for their hands-on labs. In addition, we clearly show that ARP spoofing has not been given enough attention by most tested security solutions, even though this attack presents a serious threat, is very harmful and more dangerously it is easy to conduct. As a solution, we propose the requirements for an ideal algorithm that can be used by security solutions to detect effectively any ARP spoofing attack.

Keywords: *ARP spoofing, ARP spoofing detection, Denial of Service (DoS) etc.*

OP-26: SOFTWARE DEFECT PREDICTION BASED ON CLASSIFICATION RULE MINING

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Abstract: There has been rapid growth of software development. Due to various causes, the software comes with many defects. In Software development process, testing of software is the main phase which reduces the defects of the software. If a developer or a tester can predict the software defects properly then, it reduces the cost, time and effort. In this paper, we show a comparative analysis of software defect prediction based on classification rule mining. We propose a scheme for this process and we choose different classication algorithms. Showing the comparison of predictions in software defects analysis. This evaluation analyzes the prediction performance of competing learning schemes for given historical data sets(NASA MDP Data Set). The result of this scheme evaluation shows that we have to choose different classifier rule for different data set.

Keywords: *Software defect prediction, classification Algorithm, Cofusion matrix.*

OP-27: TRUTH BEHIND THE STREET FOOD: AN EXPERIMENTAL ANALYSIS

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Abstract: The easily accessible food that is loved and eaten by most of us includes the fried food or Fast Food that is available on the shops and stalls that are either on the roadside or just a few miles away from road.The preparation for the fried food starts form the starting material as stuffing and covering that covers the stuffing material. The covering material is generally all purpose flour or any other flour (comparatively less). These covering material along with the stuffing is left in the open environment(not covered by anything) so due to that these material adsorb all the available gases and particulate matter around them,the covering material adsorb these unwanted material and gases because of the high adsorbing capacity of these flours due to their high surface area. Unwanted, harmful and flying stick particles may adsorb on the edibles. A gravimetric investigation was designed to estimate such material viz a viz bacteria. Five samples were collected from different places including popular namkeen vendors. The result for this designed experiment is very surprising and being reported in this paper.

Keywords: *Fried Food; Material Adsorb; Harmful and Flying Stick etc.*

OP-28: MULTIPAL USES OF ALOE VERA

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Abstract: Aloe vera belongs to the family Liliaceae commonly known as Ghrita Kumari, the oldest and most commonly applied medicinal plant worldwide.The plant Aloe vera is used in Ayurvedic, Homoeopathic and Allopathic streams of medicine, and not only tribal community but also most of the people for food and medicine. Aloe vera, a succulent plant species, has a long history in folk medicine. Its clear, viscous liquid has been used to treat skin problems and other disorders since ancient times. The plant leaves contains numerous vitamins, minerals, enzymes, amino acids, natural sugars and other bioactive compounds with emollient, purgative, antimicrobial, anti inflammatory, anti-oxidant, aphrodisiac, anti-helmenthic, antifungal, antiseptic and cosmetic values for health care. This plant has potential to cure sunburns, burns and minor cuts, and even skin cancer. The external use in cosmetic primarily acts as skin healer and prevents injury of epithelial tissues, cures acne and gives a youthful glow to skin, also acts as extremely powerful laxative.

Keywords: Aloe vera; Antimicrobial; Therapeutic; Medicinal Uses; Cosmetic etc.

OP-29: EVALUATION OF SOFTWARE UNDERSTANDABILITY USING SOFTWARE METRICS

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Abstract: Understandability is one of the important characteristics of software quality, because it may influence the maintainability of the software. Cost and reuse of the software is also affected by understandability. In order to maintain the software, the programmers need to understand the source code. The understandability of the source code depends upon the psychological complexity of the software, and it requires cognitive abilities to understand the source code. The understandability of source code is get effected by so many factors, here we have taken different factors in an integrated view. In this we have chosen rough set approach to calculate the understandability based on outlier detection. Generally the outlier is having an abnormal behavior, here we have taken that project has may be easily understandable or difficult to understand. Here we have taken few factors, which affect understandability, an brings forward an integrated view to determine understandability.

Keywords: *Understandability, Rough set, Outlier, Spatial Complexity.*

OP-30: ENABLING MULTIPATH AND MULTICAST DATA TRANSMISSION IN LEGACY AND FUTURE INTERNET

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Abstract: The quickly growing community of Internet users is requesting multiple applications and services. At the same time the structure of the network is changing. From the performance point of view, there is a tight interplay between the application and the network design. We propose to enable simultaneous multipath data transmission in order to increase throughput and speed up such bandwidth-demanding applications as, for example, file download. We design an extension for Host Identity Protocol (mHIP), and propose a multipath data scheduling solution on a wedge layer between IP and transport, which effectively distributes packets from a TCP connection over available paths. We support our protocol with a congestion control scheme iii iv and prove its ability to compete in a friendly manner against the legacy network protocols. Moreover, applying game-theoretic analytical modelling we investigate how the multihomed HIP multipath-enabled hosts coexist in the shared network. The number of real-time applications grows quickly. Efficient and reliable transport of multimedia content is a critical issue of today's IP network design. In this thesis we solve scalability issues of the multicast dissemination trees controlled by the hybrid error correction. We propose a scalable multicast architecture for potentially large overlay networks. We choose an evolutionary networking approach that has the potential to lower the required resources for multimedia applications by utilizing the error-correction domain separation paradigm in combination with selective insertion of the supplementary data from parallel networks, when the corresponding content is available.

Keywords: *Multipath Data Transmission, Multicast Network Thesis, ME Thesis, Master Dissertation, Computer Network etc.*

OP-31: AUTOMATIC DETECTION OF FAKE PROFILES IN ONLINE SOCIAL NETWORKS

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Abstract: In the present generation, the social life of everyone has become associated with the online social networks. These sites have made a drastic change in the way we pursue our social life. Making friends and keeping in contact with them and their updates has become easier. But with their rapid growth, many problems like fake profiles, online impersonation have also grown. There are no feasible solution exist to control these problems. In this project, we came up with a framework with which automatic detection of fake profiles is possible and is efficient. This framework uses classification techniques like Support Vector Machine, Nave Bayes and Decision trees to classify the profiles into fake or genuine classes. As, this is an automatic detection method, it can be applied easily by online social networks which has millions of profile whose profiles can not be examined manually.

Keywords: *Social Networking, Fake Profile Detection, Vector, Learning, Master Dissertation etc.*

OP-32: RENEWABLE ENERGY RESOURCES

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Abstract: Renewable energy systems can provide clean, reliable, secure and competitive energy products and services to help meet the rapidly increasing global energy demand. In carbon-constrained world of the future, renewable energy sources with zero net greenhouse gas emissions will have an increasingly important role to play. Progress towardsincluding the full externality costs relating to the use of fossil fuels comparative economic analyses of energy suppMy system.The electricity requirements of the world including India are increasing at alarming rate and the power demand has been running ahead of supply. Also generation of electrical power by cold based steam power plant or nuclear power plants causes pollution, which is likely to be more acute in future due to large generating capacity on one side and greater awareness of the people in this respect. Renewable energies are inexhaustible, clean and they can be used in a decentralized way (they can be used in the same place as they are produced). The analysis of need of renewable energy sources, the policies of India through MNES (Ministry of Non-Conventional Energy Sources), Legal aspect of Government of India about renewable energy sources.

This abstract elucidates about Different Energy sources, why we are going for non-conventional energy sources, Different non-conventional energy sources & comparison between them, about fuel cells and their application.

Keywords: *Alarming rate, Fossil etc.*

OP-33: FUTURE ENERGY CHALLENGES

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Abstract: In this paper the author has described global energy trends, and smart grids with their technology areas and smart grid technologies challenges and an energy efficient future. The overall objective is to help in identifying the future energy challenges and their solutions with reliability and sustainability. Energy security is essential for economic prosperity. This requires multidisciplinary approach by the production of energy with convectional sources as well as non-conventional sources along with integration of same with the power grids to meet out the energy challenges of 21st century.

Keywords: *Energy trends, Smart Grids, Non-conventional/Renewable source of energy, Conventional/Non-Renewable source of energy etc.*

OP-34: AGRICULTURAL POLLUTION

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Abstract: Agricultural pollution refers to biotic and abiotic byproducts of farming practices that result in contamination or degradation of the environment and surrounding ecosystems, and/or cause injury to humans and their economic interests.Leaching of Pesticides, Herbicides and other Agro-chemicals Herbicides and Pesticides among other agro-chemicals are the overriding causes of agricultural pollution owing to the numbers of invasive pests, weeds, and diseases. They are highly toxic and have the potential of remaining in the environment for ages.About, runoff is water from rain, melted snow, or irrigation that is not absorbed and held by the soil, but runs over the ground and through loose soil. As runoff moves, it picks up and carries pollution.Runoff can be a problem in farming lands, cities, suburbs, and industrial areas.

Keywords: *A Biotic, Herbicides, Runoff etc.*

OP-35: QUERY-TIME OPTIMIZATION TECHNIQUES FOR STRUCTURED QUERIES IN INFORMATION RETRIEVAL

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Abstract: The use of information retrieval (IR) systems is evolving towards larger, more complicated queries. Both the IR industrial and research communities have generated significant evidence indicating that in order to continue improving retrieval effectiveness, increases in retrieval model complexity may be unavoidable. From an operational perspective, this translates into an increasing computational cost to generate the final ranked list in response to a query. Therefore we encounter an increasing tension in the trade-o between retrieval effectiveness (quality of result list) and efficiency (the speed at which the list is generated). This tension creates a strong need for optimization techniques to improve the efficiency of ranking with respect to these more complex retrieval models.This thesis presents three new optimization techniques designed to deal with different aspects of structured queries. The first technique involves manipulation of interpolated subqueries, a common structure found across a large number of retrieval models today. We then develop an alternative scoring formulation to make retrieval models more responsive to dynamic pruning techniques. The last technique is delayed execution, which focuses on the class of queries that utilize term dependencies and term conjunction operations. In each case, we empirically show that these optimizations can significantly improve query processing efficiency without negatively impacting retrieval effectiveness.

Keywords: *Information retrieval (IR) systems, Query Optimization, Query processing, ME Thesis, Master Dissertation etc.*

OP-36: THE SECURITY AND PRIVACY IMPLICATIONS OF ENERGY PROPORTIONAL COMPUTING

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Abstract: The parallel trends of greater energy-efficiency and more aggressive power management are yielding computers that inch closer to energy-proportional computing with every generation. Energy-proportional computing, in which power consumption scales closely with workload, has unintended side effects for security and privacy. Saving energy is an unqualified boon for computer operators, but it is becoming easier to identify computing activities by observing power consumption because an energy-proportional computer reveals more about its workload. This thesis demonstrates the potential for system-level power analysis—the inference of computers internal states based on power observation at the "plug." It also examines which hardware components and software workloads have the greatest impact on information leakage.. Finally, this thesis includes modeling work that correlates AC and DC power consumption to pinpoint which components contribute most to information leakage and analyzes software workloads to identify which classes of work lead to the most information leakage. Understanding the security and privacy risks and opportunities that come with energy-proportional computing will allow future systems to either apply system-level power analysis fruitfully or thwart its malicious application.

Keywords: *Social Networking, Fake Profile Detection, ME Thesis, Master Dissertation etc.*

OP-37: FUZZY GALACTIC SWARM OPTIMIZATION WITH DYNAMIC ADJUSTMENT OF PARAMETERS BASED ON FUZZY LOGIC

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Abstract: In this work, a fuzzy method for dynamic adjustment of parameters in galactic swarm optimization is presented. Galactic swarm optimization is based on the movement of stars and galaxies in the universe, as well as their attractive influence allowing the use of multiple cycles of exploration and exploitation to solve complex optimization problems. It has been observed in the literature that the utilization of fuzzy systems for dynamic adjustment of parameters in metaheuristic algorithms produces good results when compared to using fixed parameters in the algorithms. In this work, the adjustment of the c3 and c4 parameters is made through the use of fuzzy systems because these parameters have a significant role in the operation of galactic swarm optimization. We tested the fuzzy approach with a set of benchmark mathematical functions and with the fuzzy controller of the water tank problem to measure the performance. Finally, a comparison of the results is presented among the proposed method and other metaheuristics.

Keywords: *Fuzzy method Galactic swarm optimization etc.*

OP-38: FACTOR AFFECTING SOLAR POWER PRODUCTION EFFICIENCY

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Abstract: This Paper presents on solar power production efficiency. Which affected by different types of environmental factors. The power production from three different solar panels mountings, fixed, adjustable, tracking will depend on several identified factors namely: cloud cover, sun intensity, relative humidity and heat build up. As the result sun intensity is directly related to power production. as sun intensiy increase the power production increase as well. The other three factors exhibit an inverse relationship with solar power production .as the values of three factors such as cloud cover, relative humidity, and heat build up increase the solar power production decrese.

Keywords: *solar panel mountings, Efficiency etc.*

OP-39: A COMPARATIVE ANALYSIS OF UPQC FOR POWER QUALITY ENHANCEMENT METHODS

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Abstract: Power is simply the flow of energy and the current demanded by a largely uncontrollable load. Power Quality is a measure of an ideal power supply system. The widespread use of Power Electronics based equipment has produced a significant impact on quality of electric power supply. Power Quality is an objective, measurable and clear metric that tells us about the state of the power being supplied. Conventional power quality mitigation equipment is providing to be inadequate for an increasing number of applications. One modern and very promising solution that deals with both load current and supply voltage imperfections is the Unified Power Quality Conditioner (UPQC). This paper presents a review on the UPQC to improve the electric power quality at distribution levels.

Keywords: Power Quality; UPQC etc.

OP-40: FIBRE REINFORCED CONCRETE

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Abstract: In conventional concrete, micro-cracks develop before structure is loaded because of drying shrinkage and other causes of volume change. When the structure is loaded, the micro cracks open up and propagate because of development of such microcracks, results in inelastic deformation in concrete. Fibre reinforced concrete (FRC) is cementing concrete reinforced mixture with more or less randomly distributed small fibres. In the FRC, a number of small fibres are dispersed and distributed randomly in the concrete at the time of mixing, and thus improve concrete properties in all directions. The fibers help to transfer load to the internal micro cracks. FRC is cement based composite material that has been developed in recent years. It has been successfully used in construction with its excellent flexural-tensile strength, resistance to spitting, impact resistance and excellent permeability and frost resistance. It is an effective way to increase toughness, shock resistance and resistance to plastic shrinkage cracking of the mortar. These fibers have many benefits. Steel fibers can improve the structural strength to reduce in the heavy steel reinforcement requirement. Freeze thaw resistance of the concrete is improved. Durability of the concrete is improved to reduce in the crack widths. Polypropylene and Nylon fibers are used to improve the impact resistance. Many developments have been made in the fiber reinforced concrete. Key words: Fiber Reinforced Concrete; Steel Fiber; Glass Fiber; Natural Fiber; Aspect Ratio; Mechanicaland Structural Properties.

Keywords: FRC; Steel Fiber; Glass Fiber; Natural Fiber etc.

OP-41: CHARACTERIZATION AND QUANTIFICATION OF WATER ASSOCIATED WITH METAL COMPLEXES OF SULFANILAMIDE THROUGH SPECTRAL AND THERMAL ANALYSIS

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Abstract: Spectral (UV/Vis and Infrared Spectroscopic) and thermal analytic methods (Thermogravimetric analysis TGA and differential thermal analysis DTA) have been undertaken for the characterization and quantification of water associated with transition metal complexes of Sulfanilamide. Noticeable weight loss changes in the thermogravimetric curves were observed between different temperature ranges, differentiating between externally absorbed crystal water and coordinated water. Spectral investigations have well supported the findings of thermal studies. Kinetic and thermodynamic parameters for the dehydration processes for the metal complexes have been evaluated through Integral Equations of Coats and Redfern.

Keywords: *Infrared Spectroscopic, Thermogravimetric; TGA; DTA etc.*

OP-42: STUDY THE SHEAR PARAMETER OF VARIOUS SOILS USING MARBLE DUST AS STABILIZER

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Abstract: The Rapid growth of industries of marble produce and the production of steel Creates hazardous waste materials by a large extent which cause a big problem to the humanssurrounding them as well as acts as a pollutant affecting the ecological system of theenvironment. Rajasthan is known for mining of minerals and marbles and dolomite. District Kishangarh, Bikaner, Jhalawar, Banswara, Alwar, Sirohi, Ajmer (Makrana), Jaipur etc. is known for the mining of Marble. These marble industry and marble cutting units generate environmental problem also in the form of waste chips and dust. The main objective of this research is to investigate the possibility of utilizing waste marble dust in stabilizing problematic soils (especially clayey & dune soils). In this research work it is a main concentration to utilize this marble waste product in improving shear parameters and other geotechnical properties of different type of soil samples. In this research work two types of soil samples are adopted for improving shear parameters and other geotechnical prope rties. One of the soil samples is clayey in nature which is taken from Gajner (Kolayat) and another one is dune sand taken from Lunkaransar (Bikaner). White marble dust is used for this purpose. Varying percentages i.e. 5%, 10%, 15% and 20% of marble dust were mixed with sand and tested experimentally. This research work shows the effects of marble powder and sand on California bearing ratio, permeability and shear strength parameters of clay soil. On the basis of these experiments, conclusions have been drawn on shear characteristics and other geotechnical properties of soil samples. Few suggestions to further research work are also mentioned here.

Keywords: *Stabilization; Atterberg's limit; Testing of soil; Marble dust; Shear property etc.*

OP-43: GEOTHERMAL ENERGY

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Abstract: Geothermal energy refers to the production of energy using the internal heat of the Earth's crust. This heat comes from the radioactive decay of minerals and continual heat loss from the earth's original formation. The production of geothermal energy involves drilling wells into the Earth's crust at approximately a depth of 3-10 km. The heat is extracted with a variety of methods but in most cases is drawn from the Earth using water and steam. Hot water from the earth may be extracted to heat homes and buildings. This is done either by directly circulating the hot water through buildings or by pumping it through a heat exchanger that transfers the heat to the building. Geothermal heat can also be used to produce electricity in a geothermal power plant. Electricity is generated when geothermal heat produces steam that spins turbines on a generator. Geothermal technology can only be used in locations with specific geologic conditions. For this reason, the major regions of geothermal development are in the most volcanically and tectonically active regions of the world. For example, heat and power plants can be found in Iceland, Indonesia, New Zealand, Hawaii, California, and Ecuador. In these regions, it can make up a significant portion of the power and heating sectors. When developed irresponsibly, ground temperatures below the surface may lower. Geothermal is an environmentally friendly technology because it produces little to no greenhouse gas emissions. One concern with geothermal power is its use of groundwater. The process of extracting this water may unintentionally release carbon dioxide and hydrogen sulfide to the atmosphere. Mitigating the release of these emissions is a key challenge with developing this technology. Finally, the costs of geothermal energy are largely incurred up-front. Simply put, it is expensive to carry out the seismic sensing, test well drilling, confirmation testing, and other necessary preliminary investigations to ensure that a geothermal plant will be capable of meeting desired production specifications.

Keywords: *Geothermal energy; electricity; production etc.*

OP-44: AUTOMATIC DESIGN OF SHEET METAL FORMING PROCESSES BY "UN-FORMING"

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Abstract: Most sheet metal components are made by deep drawing, which requires expensive tooling. Although many new flexible forming processes have been invented, they have largely not had industrial application, so it would be valuable if intelligent means to design new processes existed. This has not previously been attempted, although there has been work to classify both products and processes and to define optimal forming processes. A body of work in garment production examines the optimal flattening of garments, starting from their final form on a human body, to deduce the best cutting pattern from flat fabric. This paper develops a related approach for the first time, "un-forming" sheet metal from its finished geometry to a flat blank without prior specification of a process. An algorithm is developed that allows specification of process constraints and great freedom in implementing un-forming strategies, leading to a prediction of the strain history of the un-forming process. Reversing the direction of this history, allows prediction of the stresses in the work piece required to form the target part, by use of an appropriate material model. The external forces (boundary conditions) required to maintain equilibrium with this stress state can then be calculated, allowing an iterative refinement of the constraints on un-forming until a physically achievable process has been designed. The approach is validated against a known process, and used to demonstrate how several previously untried forming strategies could lead to specification of new process designs. In future work, the method could be extended to allow an iterative specification of tooling to create the required boundary conditions, and hence to complete automatic process designs.

Keywords: Sheet Metal; Forming; Un-Forming; Boundary Conditions etc.

OP-45: LEACHING BEHAVIOUR OF TRACE TOXIC METALS FROM FLYASH, THEIR SEEPAGE CONTROL TO GROUNDHATER AND UTILISATION OF FLYASH

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Abstract: The flyash of coal based thermal power plants is being dumped openly from the last several years in the form of wet slurry in a pond where leaching of trace toxic metals contaminate both surface and ground water. The leaching characteristics of chromium (III), chromium (VI), mercury (n) and arsenic from flyash were investigated at various pH levels. It was estimated at pH 7.0 that about 40% of these toxic elements present in flyash was leachatable and may leach out to groundwater. Twelve monitoring wells were selected surrounding the dumping site for studying these metals in groundwater. The ash transport water samples of the pond were also examined for these toxic metals. PH of both surface and groundwater were measured and found in the range of 6.5 to 7.8. The concentration of these toxic metals in groundwater around the dumping site as well as in ash transport water samples were determined by grafite and AAS etc, spectrophotometric methods and the results are incorporated in Table1. A control technology is suggested for seepage control of these trace toxic metals to groundwater with proper synthetic liners.

A method for flyash utilisation is developed for building materials/smooth road or airport runway construction. In this method the fLyash is mixed with bitumen (tarcoal) in the ratio of 70:30 at about 80–90 °C. The specimen of flyash bitumen was a very strong tensile material after cooling because of the flyash contains high percentage of oxides of silicon, aluminium etc. It is a good way for utilisation of flyash as compared to flyash brick manufacturing as a building material. The leaching behaviour of these toxic metals in flyash bitumen was studied at various pH values. It was found that the metals in the leachate solution in negligibly small.

Keywords: Flyash, leaching; toxic metals; pH effects; flyash utilisation; etc.

OP-46: RESOURCE SUSTAINABILITY

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Abstract: Over the last decades, the use of primary resources has been increased due to the growing global population, the improvement of economies and a new life-style which is changing the habits of populations from high income and developing countries. However, some goods, such as fossil fuels, free lands, metals and mineral reserves are mostly limited, while renewable resources such as water and recyclable materials are commonly mismanaged. As a result, the sustainable use of resources is becoming mandatory for the development of current economies in a viable way, in order to maintain a clean environment for long time.Since the second half of the 20th century, research and studies have focused their interest on environmental concerns such as air pollution, water and soil contamination, excessive mine extraction, deforestation, waste mismanagement and unplanned land use, among others. This attention is due to the increasing frequency of events which affect the lives of people worldwide and which are introduced mostly by anthropic activity. Hence, changing the form of industrialization, resource management and project development has been suggested by many authors, providing many solutions that can be viewed as a real opportunity. For example, the main solution suggested is the inclusion of the so-called “Circular Economy” in current and future management plans. This theory has been developed in order to encourage change in the general behavior of public policies which adopted the concept of the linear economy (i.e., buy–use–waste), introducing a few management steps to change the end-of-life stage of resources, with the aim of recovering and reusing something that is not necessary at the current moment. Thus, the reuse of recyclable materials, the inclusion of renewable energies, the treatment of wastewater for its reuse, the construction of new facilities adopting green policies (reducing the energy consumption and improving efficiencies), and the reuse of low-value materials, are all solutions that were recommended for the enhancement of new economies in a sustainable manner and by viable means. On one hand, many efforts were introduced at international and local level for the adoption of these proposals into new management policies. On the other, more studies are required, in order to boost the development of sustainable technologies and projects. This section focuses on original research and reviews regarding the sustainable development and re-use of natural resources according to the principle of the Circular Economy. In this framework, studies concerning the sustainable use of water resources, biomass valorization, recycling of waste, energy recovery, renewable energy provision and the sustainable exploitation of natural resources are welcome as well as other related arguments, in the form of both specialized and interdisciplinary manuscripts.

Keywords: *Resource; Management; Sustainability etc.*

OP-47: NANOPARTICLE: HARNESS AND STORAGE OF SOLAR ENERGY

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Abstract: Nanotechnologies have amazing ability to boost daily life across a variety of disciplines. To meet with daily needs of power consumption, requires much more to harness solar energy, which is attracting tremendously researchers. The non renewable sources have a limit and fear for future which insists to develop the alternatives of power generation. The solar energy is safer and limitless for use if we have ways to harness and store the energy. Big issue of harvesting and storage of solar energy can be resolve by the use of nanotechnoilogy specifically nanomaterials. At nanoscale material have high surface-to-volume ratio which shows unusual properties, as the particle sized is reduced. So need to develop such material in laboratory which is able to harness solar energy at maximum.

Here is the idea to develop dye-Sensitized Solar Cells for generation of electricity. The formation of TiO2 thin films, to sensitize the dye molecule, as photoexcited electrons generated from the conduction band.

The fellowship will be helpful for me to explore ideas in the field of renewable energy sources.

Keywords: *Solar Energy; Renewable Sources; TiO2 etc.*

OP-48: GREEN CHEMISTRY AND NEW TECHNOLOGICAL DEVELOPMENTS

(New Avenues for the Green Economy and Sustainable Future of Science and Technology)

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Abstract: The chemical industry plays a fundamental role in sustaining the world economy and underpinning future technologies and scientific advances in new materials, less toxic products, renewable energy sources, environmental protection, industrial processes with energy efficiency and renewable raw materials. Green Chemistry (GC) or Sustainable Chemistry aims, under greater societal expectations, for a sustainable global future of the planet Earth, for the design of chemical products that eliminate the use of hazardous substances for man and the environment.GC offers enhanced chemical process economics, concomitant with a reduced environmental burden. GC can be applied to design environmentally benign synthetic protocols, to produce life-saving medicines, environmentally friendly agrochemicals, new enzymes for biocatalytic chemical processes, innovative renewable energy sources, energy efficiency in chemical reactions, and innovative materials while minimizing environmental impact.The "bionic leaf" method achieved the splitting of water by sunlight, the production of hydrogen and with the help of bacteria the formation of isopropanol as biofuel. Biocatalysts employed on large scale in the pharmaceutical synthesis delivering low cost and high quality intermediates and drugs. Biodegradable polymers and polymers from carbon dioxide have been advanced by many chemical companies. Organic photovoltaic solar cells have been developed for low-energy-production photovoltaic solutions provide electricity at a lower cost than first- and second-generation solar technologies.Vegetable oils have been used in numerous applications, including oil-based paints. The replacement of oil with biomass as raw material for fuel and chemical production is an interesting option for the development of biorefinery complexes. Green Chemistry envisaged technological interventions for traditional farming practices that will reduce environmental pollution and increased yields of many crops. There is intensive research on renewable energy sources for sustainable storage technologies (batteries). This review contains and presents selected research papers and projects on innovative green chemistry and green engineering which are aiming to a sustainable future for science and technology and innovative chemical products.

Keywords: *Green Chemistry; Biotechnological etc.*

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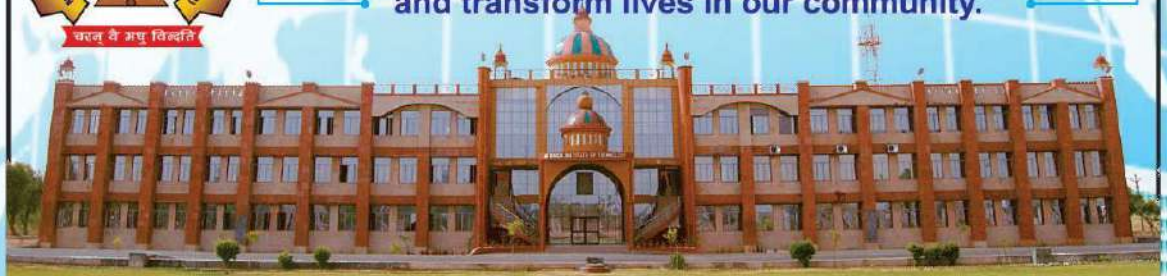

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