



**Global Research &
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CONFERENCE PROCEEDINGS

**ICRST (2018) VIIth International Conference on Researches in
Science & Technology, 15-16 June 2018, Singapore**

15-16 June 2018

Conference Venue

Nanyang Technological University, Nanyang Executive Centre,
Singapore

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**ICRST (2018) VIIth International Conference on Researches in Science & Technology, 15-16 June 2018,
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Nanyang Technological University, Nanyang Executive Centre, Singapore



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Preface:

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Keynote Speaker



Dr. Deepak L. Waikar
Managing Partner, EduEnergy Consultants, Singapore and Senior
Consultants Tacstra Solutions Pte Ltd, Singapore

Dr. Deepak L. Waikar is Managing Partner, EduEnergy Consultants, Singapore and Senior Consultants Tacstra Solutions Pte Ltd, Singapore. He has been involved in education, training, research & management fields for almost three decades. He has been Associate/Adjunct faculty member for the premier institutions & academies in India, Singapore, Australia and UK. He has authored/co-authored book chapters, research articles and policy papers on power, energy, management & education related topics. He has served on various committees in **professional** bodies such as **Chairman** of IEEE, Power Engineering Chapter, Singapore. He is a recipient of IEEE-PES **Outstanding Power Engineers' Award** 2003 and SP Green Buddy Award 2004. Dr. Waikar has been a member of Board of Examiners of Singapore Certified Energy Manager's programme. He has delivered invited presentations on power, energy, education, management & leadership related topics at the international conferences, seminars and forums in North America, Australia-New Zealand, Europe & Asia. He is a Fellow of the International Energy Foundation, Senior Member of IEEE USA and a Life Member of the Institution of Engineers, India with **Ph.D.** from National University of **Singapore** & **M.S.** from University of Saskatchewan, **Canada**. He obtained PG-DBM, M.Tech. & B.E. from **Nagpur** University, **Banaras Hindu** University and **Marathwada** University in **India**, respectively. His interests include **Sustainable Energy Leadership**, **Rethinking** Teaching, Learning & Academic **Leadership**, Re-inventing & **Transforming** Higher Education, **SMART Model** for Talent & Leadership Development, **Innovative** Project **Design** & Management, cricket & chess.

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Keynote Speaker



El kebir abdelkader
Lecturer at Mustapha Stamboli University, Département of Electrical Engineering, Faculty of Technology, Mascara Alegria

Abdelkader El kebir was born in Sidi-Belabbes (Algeria) in 1964. He obtained a diploma of engineer in Electrotechnic in 1991 from the University of ENSET Oran (Algeria). He received his master at University of ENSET Oran (Algeria) from 2006 at 2008. He is now Lecturer at University of Mascara. His main research interests are in the field of the analysis and intelligent control of electrical machines, multimachines multiconverters systems, modelling and simulation of Fuzzy controllers Neural Networks Genetic Algorithm

Session Chair



Venkatagiri Krishnamoorthy Bupesh Raja
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<p>Yuri Partol GICICRST1804051</p>	<p>Estimating The Value Of On-Street Parking In Davao City</p> <p>Yuri Partol School Of Applied Economics, University Of Southeastern Philippines, Philippines</p> <p>Abstract Contingent Valuation Method was used to measure the parker’s willingness to pay (WTP) for on-street parking in Davao City. A probit regression analysis using Stata/SE 13.0 was done to analyze the results. The study results indicated that mean willingness to pay is Php 14.71 and on-street parking in Davao City is valued at Php 2,687,794.41 annually assuming full occupancy at the City Hall Drive area. The cost the Davao City government incurs equals the opportunity cost for non-collection of parking fees. The bid price was found to be statistically significant and is positively correlated with the parkers’ WTP while the substitute source of parking, the employment (employed in the area or otherwise) and the constant term is negatively correlated albeit statistically insignificant. Keywords: Willingness to Pay, On-street Parking, Contingent Valuation</p>
<p>S. Geetha GICICRST1804052</p>	<p>Service Life Prediction For Concrete Composite With Carbon Fibres For Marine Environment</p> <p>Dr. S. Geetha Professor, Civil Engineering Department, Rajalakshmi Engineering College, Thandalam, Chennai, India</p> <p>Dr. M. Selvakumar Professor, Civil Engineering Department, Rajalakshmi Engineering College, Thandalam, Chennai, India</p> <p>ABSTRACT As construction technologies are improved and as we go for advanced technologies in construction of infrastructure facilities the importance of concrete technology is also more demanding. The field of concrete technology has many new admixtures which improves the properties of concrete. Durability and performance of structures are the main focus now. In view of this, apart from just proportioning a concrete mix researchers are now interested in testing the performance of the material in varied environmental conditions. Service life prediction is the evaluation of the performance of the structure over a period of time. The prediction involves knowledge of materials science, laboratory testing and data from structures that are in service. It is a complex area where interpretation of correct data has been used and it involves systematic approaches. Researchers have used numerous methodologies and mathematical formulae that are used for the service life prediction. Accelerated laboratory tests forms the basis for these kinds of predictions. This paper deals with proportioning of concrete composite that can be used in aggressive marine environment, subject to severe exposure and the service life prediction of the material in such environment. Admixtures play a major role in making concrete durable. This composite has been customized with silica fume, fly ash and gypsum for improving the strength of concrete. Carbon fibres have been added to resist the impact of sea waves and also to improve the flexural toughness of concrete. As there are various factors that have been considered in proportioning this particular concrete mix, experimental trials have been designed with reference to central</p>

	<p>composite design of Response Surface methodology using Design Expert software. The trials were cast using these design mixes and tests were conducted for strength properties and durability parameters. The experimental results have been analyzed for ANOVA to test the accuracy of results. Multiple optimizations have been done to get the best mix with maximum strength and minimum durability issues. Micro structural investigations were also done to support the experimental findings.</p> <p>Keywords: strength, durability, composite, tests, fibres</p>
<p>Afroz Ahmad Shah GICICRST1804053</p>	<p style="text-align: center;">Earthquake education through documentary movies</p> <p style="text-align: center;">Shah A. A. Assistant Professor of Structural Geology, Universiti Brunei Darussalam, Brunei</p> <p style="text-align: center;">Nava Graduate Students with Curtin Sarawak, Malaysia</p> <p style="text-align: center;">Eric Graduate Students with Curtin Sarawak, Malaysia</p> <p style="text-align: center;">Stephan Graduate Students with Curtin Sarawak, Malaysia</p> <p style="text-align: center;">Abstract</p> <p>Earthquake Science education through traditional route has not progressed much, thus there is a need to revamp this and introduce a new and exciting opportunity to engage students and public to earthquake sciences. Here we show our initial work on earthquake education in Malaysia and Brunei of SE Asian regions where such information is totally missing. We recorded real stories from people in these countries, which were affected by June 2015 Sabah earthquake. We blended these stories with the scientific information about the earthquake that was obtained from real scientists who are currently working in the region. The outcome is a documentary movie that shows the whole story about the earthquake hazards in SE Asia, and it mainly focuses on the science of earthquake that struck Sabah, Malaysia in 2015. It highlights the extraordinary impact of making documentary movies on earthquake sciences, and how it helps in dissemination of real information to public, students, and other stakeholders. The ten minutes long movie shows how to translate a geologically difficult and complicated region into a simple and meaningful movie that can be understood by ordinary people.</p> <p>Keywords: Education, Earthquake, Hazards, Documentary, Movie</p>
<p>Abubakar Siddiq Mohameed GICICRST1806054</p>	<p style="text-align: center;">Impact of Indigenous Language in Teaching and Learning of Mathematics in Junior Secondary Schools in Nigeria</p> <p style="text-align: center;">Abubakar Siddiq Mohameed College of Pure and Applied Sciences, Statistical and mathematical sciences department, Kwara state university, Maleta, Ilorin- Kwara Nigeria</p> <p style="text-align: center;">ABSTRACT</p> <p>The indigenous language refers to the child's mother tongue, which is a very crucial language in the child's developmental stage of skill and language acquisitions. Mathematics is one of the basic and compulsory subject taught in primary and post primary schools in Nigeria. The purpose of this research is to determine the effect of indigenous language on junior secondary school student's academic performance in mathematics. To archive this, a Demonstrative Teaching Techniques (DTT) and Mathematics Test of</p>

	<p>Assimilation (MTA) are used for the study mainly to assess the effect of treatment on the two groups (Control and Experimental groups). This study used Quasi-Experimental research design and the sample consist of 120 students randomly selected from three schools in each of the six Geo-political zones in Nigeria, leaving the total population sample to 2160 students. Three (3) research questions and three (3) null hypotheses guided the study. The statistical analysis, using z-test showed that there was a significant difference before and after the teaching using indigenous language on students' performance in mathematics ($p \leq 0.05$). Based on the findings, it is recommended among other things that indigenous language (mother tongue) should be encouraged in our school system, particularly at junior secondary school level in Nigeria. This will in turn improve the student academic performance in mathematics.</p> <p>Keywords: Indigenous Language, Mathematics, and Performance.</p>
<p style="text-align: center;">Teo Ming Ting GICICRST1806055</p>	<p style="text-align: center;">Recovery of light rare earth elements using chelating ligands grafted onto surfaces of polymeric adsorbent</p> <p style="text-align: center;">Teo Ming Ting Radiation Technology Division, Malaysian Nuclear Agency, 43000, Kajang, Selangor, Malaysia</p> <p style="text-align: center;">Nor Hasimah Mohamed Radiation Technology Division, Malaysian Nuclear Agency, 43000, Kajang, Selangor, Malaysia</p> <p style="text-align: center;">Sarala Selambakkannu Radiation Technology Division, Malaysian Nuclear Agency, 43000, Kajang, Selangor, Malaysia</p> <p style="text-align: center;">Nor Azillah Fatimah Othman Radiation Technology Division, Malaysian Nuclear Agency, 43000, Kajang, Selangor, Malaysia</p> <p style="text-align: center;">Abstract</p> <p>Rare earth elements (REEs) are critical and important to support the increasing demand from advanced technology and clean energy sectors. The separation and purification of these elements remain challenging. Various extracting agents have been explored for separation of REE. Polymeric grafting modified fibers is an efficient material for recovery and subsequent separation of REE because of its high surface, tunable functional groups, thermal and mechanically stable substrate. In this study, a new diglycolamide based polymeric adsorbents were synthesized through immobilization of diglycolamide ligand onto aminated epoxy group. The prepared polymeric adsorbent was tested for the separation of rare earth elements from solution. The sorption behavior of lanthanum (La) and neodymium (Nd) in acidic medium and alkaline medium was tested in batch mode experiments. The diglycolamide based adsorbent was found to have high adsorption of La and Nd in pH 2-3. The substrate of the polymeric materials and ligand were found to be stable under acidic conditions with the ligand remaining intact after 24 h of contact with 1 M HNO₃. The result also shows that adsorption behaviors of diglycolamide can be tuned and selectivity of the rare earth elements from solution can be improved.</p> <p>Keywords: lanthanum, neodymium, polymeric adsorbent and rare earth elements</p>



Manish Singh Sengar
GICICRST1804056

Removal Of Some PAHs Via. Bio-Nanoparticles

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Abstract

This study offers a simple and convenient method of synthesis of silver nanoparticles. Use of green method to prepare AgNPs is the step towards the green chemistry which is eco-friendly and safe for the environment. PAHs which are carcinogenic and mutagenic were removed successfully with optimal efficiency of more than 80% following the order of Phenanthrene > Pyrene > Anthracene. The adsorption of PAHs on silver nanoparticles is attributed to hydrophobic interactions. The natural and green source provides an adsorbent that has comparable efficiency to chemically synthesized expensive adsorbent under ambient conditions. Ag(P) is relatively a better adsorbent than Ag(W) in removing PAHs. It may be attributed to more functional groups in the plant extract participating in binding of PAH to the surface. Agp can be applied over a wide range of temperature, due to stability of compounds present in *Allium sativum* at high temperatures. The study recommends the use of alternate economical and green natural adsorbents for control of poly aromatic hydrocarbons (PAHs).



Babayo Aliyu Shanga
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Emergence Of Handoff In Global System Mobile (Gsm) In Nigeria

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Abstract

The development of technology has brought about new inventions of making things easier for the teeming populace of our country Nigeria. One of such development is the introduction of a Mobile Phone which cannot be over emphasized in our day to day use of Mobile phone, we moved out of range of one base station into the range of another base station without interruption when sharing the same boundary which is called handoff. This paper examined the application of handoff to the Global system mobile (GSM). Its importance, classification, possible problems associated with it and possible remedy were analyzed and discussed.

KeyNote: Handoff, Global System Mobile

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A simple power electronic interface based on DSP controller for control of DC motor fed from solar photovoltaic cells

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	<p style="text-align: center;">National Institute of Technology, Tiruchirapalli- 620 015, Tamil Nadu, India</p> <p style="text-align: center;">Abstract</p> <p>A DSP controller based speed control of separately excited DC motor fed from photovoltaic (PV) array with closed loop controller has been developed. A Single Ended Primary Inductor Converter (SEPIC) is used as an interface between PV array and the DC motor. Duty cycle of the SEPIC converter is automatically varied depending on the required motor speed. This is programmed in the DSP controller. The model of DC motor was constructed and the entire simulation of the closed loop system was carried out on a MATLAB / Power System block set. Simulation and experiments were conducted on a DC motor supplied from a PV array and furnished the results. Comparative analysis is made between the hardware and software simulation results which find very close harmony between them which validates the proposed system.</p> <p>Keywords:- DSP Controller, SEPIC converter, photovoltaic, DC motor.</p>
 <p style="text-align: center;">Agustiani Putri GICICRST1804059</p>	<p style="text-align: center;">Smart Freeaway Microalgae Photobioreactor Helped by Solar Energy as Eco-Green Technology to Reduce CO2 Emissions Trigger Global Warming for Sustainable Environmental Development in DKI Jakarta, Indonesia</p> <p style="text-align: center;">Agustiani Putri State University of Jakarta, Jakarta, Indonesia</p> <p style="text-align: center;">Husni Falah State University of Jakarta, Jakarta, Indonesia</p> <p style="text-align: center;">Haryanto Adi Nugroho State University of Jakarta, Jakarta, Indonesia</p> <p style="text-align: center;">Abstract</p> <p>Global warming that cause climate change effects has become the center of attention around the world to find a solution in order to reduce or minimize its impact. Formerly, Indonesia was an agricultural country. But now, Indonesia has started to become a state-based industries, especially in DKI Jakarta. The impact was increasing CO2 emissions in atmosphere from industrial and combustion of motor vehicles. In addition, Indonesia has one of the marine resource can be used to absorb CO2 is faster than land plants that is Nannochloropsis sp microalgae. Therefore, microalgae photobioreactor was created to find out how much CO2 absorbed and O2 produced. This research was conducted among 4 months in State University of Jakarta. The steps were study literature, supply tools and materials, photobioreactor manufacture, due diligence, Nannochloropsis sp cultivation, and CO2 absorption and O2 production test. The data obtained between CO2 absorption and O2 productivity is directly proportional. In the first, second and third repetitions CO2 absorption and O2 production were found at 40%, 68% and 83%. So, microalgae photobioreactor can be one solution to reduce CO2 emissions, especially city-based industries in Indonesia. For long scale, microalgae photobioreactor can be placed on the rooftop of each high building.</p> <p>Keywords: Climate change, CO2 emissions, global warming, photobioreactor</p>
<p style="text-align: center;">Ezema, Cajethan Chidi GICICRST1804060</p>	<p style="text-align: center;">Global Peace And Security: A Case For Facility Management In Law Enforcement Agencies In Enugu, Nigeria</p> <p style="text-align: center;">Ezema, Cajethan Chidi Department of Estate Management, Institute of Management And Technology, (IMT) Enugu</p>

	<p style="text-align: center;">Abstract</p> <p>Given the novel challenges faced by law enforcement agencies in achieving sustainable peace globally and locally, the study fills the gap in extant literature by determining the role of Facility Management (FM) in overcoming the challenges. It is significant to law enforcement agencies, Estate Surveyors and Valuers (ESVs), the public and scholars. Related literature on FM and service delivery proxies of law enforcement agencies are reviewed conceptually and empirically. The population of the study comprises all 6 security agencies and 45 ESVs in Enugu. The focus group is limited to a sample of 138 officers, determined with Freund and Williams formula for infinite population due to the reluctance of the agencies to release their official population figures. The expert survey covers all 45 ESVs using a Likert scale structured questionnaire. Hypotheses were tested with One-sample Kolmogorov Smirnov Test and Correlation Coefficient. The study found that prospects of FM in law enforcement agencies are advancing the strategic utilization of the workplace, sustainable inventory management, and establishment of effective communication systems. It concludes that FM will play a significant positive role of engendering global peace through improved service delivery of law enforcement agencies. The study recommends that government appoint ESVs with respect to cohesive facility management functions in the agencies.</p> <p>Keywords: Law Enforcement Agencies, sustainable inventory management and effective communication systems</p>
 <p>Aravinda Sumanarathna GICICRST1804061</p>	<p style="text-align: center;">Relativity of Carbonaceous Meteorites and Comet Dust for Processing Biological Composition (Micro Fossils): A Review on Metamorphic and Sedimentary Petrology of Polonnaruwa (Sri Lanka) Meteorite Stone</p> <p style="text-align: center;">Aravinda Ravibhanu Sumanarathna School of Earth & Atmospheric Sciences, University of Madras, Navalar Nagar, Chepauk, Triplicane, Chennai, 600005, India</p> <p style="text-align: center;">Jinadasa Katupotha Department of Geography, University of Jayawardenepura, Nugegoda 10250, Sri Lanka</p> <p style="text-align: center;">Buddika Madurapperuma Department of Forestry and Wildland Resources, Humboldt State University, Arcata, CA, USA</p> <p style="text-align: center;">Janaka Kuruppuarchchi Department of Botany, The Open University of Sri Lanka, PO Box 21,</p> <p style="text-align: center;">Abstract</p> <p>The study chronicles a series of landmark events of Polonnaruwa Arnaganwila, dry zone of Sri Lanka carbonaceous meteorites that impacted on 29th December 2012. The main objective of this study was to compile the cited articles for creating a plausible corresponding model to possess the sedimentation of Micro Fossils (Fossil diatoms) found in carbonaceous meteorites. As such, the sampling data of Polonnaruwa stones were investigated using diverse tools and methods. i.e., ICP-OES, GC-MS, SEM, EDAX, CHN, FTIR, Raman Spectroscopy, XRD. The Optical Spectroscopy was adapted as a second major objective to interpret the physical, chemical, mineral properties of stone including oxygen isotope, crystalline and biological composition. Geologic age of the stones was determined by N/C atomic ratio depletion (N/C ARD) technique. Results showed that the</p>


	<p>Polonnaruwa stone comprised of high porous minerals including Si-K-rich, Al-depleted, amorphous melt enclosing trace (commonly <1µm) anorthoclase, albite, anorthite and quartz. Additionally, it was recognized that bound H₂O < 0.03wt% originated from hypervelocity impact. SEM analysis revealed that several fossil microorganisms similar to acritarchs, hystricho spheres and diatoms were represented. Geologic age of the stones was recognized as at least ~300 Ma by N/CARD. Triple oxygen isotope analysis provided the values of $\Delta^{17}\text{O} = -0.335$ with $\delta^{17}\text{O} = 8.978 \pm 0.050$ and $\delta^{18}\text{O} = 17.816 \pm 0.100$ which indicated constituents of non-terrestrial sources. To conclude, our model was significantly supportive for providing a gradual series of meta-metamorphic to sedimentation that has processed the numerous of condition for stability of microfossil in carbonaceous meteorites.</p> <p>Keywords: Meteorites, Micro fossils (diatoms) , Sedimentation Petrology , Sri Lanka</p>
<p>Dr Anil Shantappa GICICRST1804064</p>	<p style="text-align: center;">Study of Effective atomic numbers of Bioactive Glasses for Photon Interaction</p> <p style="text-align: center;">Anil Shantappa Department of Physics, Guru Nanak Dev Engineering College, Bidar, Karnataka, India</p> <p style="text-align: center;">S. M. Hanagodimath Department of Physics, Gulbarga University, Gulbarga, Karnataka,India</p> <p style="text-align: center;">Abstract</p> <p>Bioactive glasses are a group of synthetic silica-based bioactive materials with unique bone bonding properties. Bioactive glasses are widely used in joint replacements, bone plates, etc. As a consequence, various hu-man organs and bioactive material are exposed to X-rays and gamma rays. Once some parts of the human body is replaced by bioactive material, it is very important to know that how these material can be affected by exposing with X-or gamma radiation. This work was carried out to study the nature of mass attenuation and effective atomic numbers of bioactive glasses for gamma or X-rays. In the present study, we have calculated the effective atomic number, electron density for photon interaction in the energy range 1 keV to 100 MeV of selected of bioactive glasses SiO₂-Na₂O-CaO-P₂O₅, SiO₂-CaO-P₂O₅ and SiO₂-CaO. We have also computed the single valued effective atomic number by using XMuDat programme. It is observed that variation in effective atomic number (ZPI, eff) depends also upon the weight fractions of selected bioactive glasses and range of atomic numbers of the elements. The XMuDat calculates Z_{eff}, XMuDat (Effective atomic number) by assuming photoelectric absorption as the main interaction process where as Nel, XMuDat (Electron density) assuming Compton scattering as the main interaction process.</p> <p>Keywords—Bioactive glasses, Electron density, Effective atomic number, Gamma rays, Photon interaction</p>
 <p>Muntarin Mudi Yar' adua GICICRST1804065</p>	<p style="text-align: center;">Environmental Restoration: Clay as Environmental Restoration Materials in the Built Environment</p> <p style="text-align: center;">Muntari Mudi Yar' adua Hassan Usman Katsina Polytechnic, College of Environmental Studies, Department of Building</p> <p style="text-align: center;">Abstract</p> <p>Building materials is an important aspect within the design and building construction process, having a great influence on the restoration and quality</p>

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	<p>for the built environment. The objective of this paper is to identify the social, economic, environmental and restoration aspects of clay for the built environment. Environmental degradation in developing countries leads to incorporating clay building products: bricks, roofing slates, toilet and floor tiles clay pipes and sanitary appliances in most present projects in the built environments. This research was carried out in suitable civil and building construction companies in Katsina, Kano and Kaduna states in northern Nigeria. The research findings identified that economic aspects has the highest potentials for restoration degraded built environment.</p>
<p style="text-align: center;">S. Sruthy GICICRST1804068</p>	<p style="text-align: center;">Green Engineering Application in Pharmaceutical Industries for the E factor reduction</p> <p style="text-align: center;">S. Sruthy Research Scholar, Environmental and Water Resources Engineering, Department of Civil Engineering, Indian Institute of Technology Madras, Chennai – 600036, India</p> <p style="text-align: center;">Dr. S. Mohan, Ph.D. Professor, Environmental and Water Resources Engineering, Department of Civil Engineering, Indian Institute of Technology Madras, Chennai – 600036, India</p> <p style="text-align: center;">Abstract</p> <p>Different processes are involved in a Pharmaceutical industry to manufacture a drug such as manufacturing, extraction, processing, purification, and packaging of chemical and biological materials into solids and liquids which are then used for medication. These industries mainly employ sequential batch operations which involves almost 4 to 5 different stages to produce an Active Pharmaceutical Ingredient (API). At each stage of its production they use different chemicals/reactants/solvents/water etc. As a result the wastewater generated at each stage varies not only in composition but also in quality and quantity. At the treatment plant the wastewater will be a cocktail of around 20-30 chemicals which will decrease the efficiency of biological treatment. Also the chances of metabolite formation or the transformation of the parent compound during treatment or by some other natural means is not well understood. The E factor (kg of waste produced per kg of product produced) for pharmaceutical industry is 25->100 which means for 1 kg of product produced around 25 kg of waste is been produced. This has motivated to adopt the Green Engineering Principles in the Pharmaceutical industry in the production stage. So rather than treating the wastewater generated from each process together at a common effluent treatment plant, system needs to be modified in a way such that mother liquor generated at each process could be segregated at the source itself and wherever possible reuse and recycle should be done.</p> <p>The research work mainly focuses on making the effluent more environmental friendly by adopting reuse and recycles options during an API production and analyzing the reduction in associated E factor. Adopting these in practice is challenging as these process modifications has to get concerned regulatory approval. Though the challenges are high, but when considered from ecological point of view it is high time that the 3R principles to be incorporated in the industries. A closed loop system of treatment needs to be promoted for the sustainable operations of the Pharmaceutical industry.</p> <p>Keywords: Pharmaceuticals, Active Pharmaceutical Ingredient, E factor, Green Engineering Principles</p>
<p style="text-align: center;">Prathibha Ekanthaiah GICICRST1804069</p>	<p style="text-align: center;">Analysis Of Power Quality Events Using Wavelets</p>

	<p style="text-align: center;">Prathibha.E Sri Krishna Institute of Technology, Bangalore, Karnataka, India</p> <p style="text-align: center;">A.Manjunatha Sri Krishna Institute of Technology, Bangalore, Karnataka, India</p> <p style="text-align: center;">Cyril Prasanna Raj MS Engg College, Bangalore, Karnataka, India</p> <p style="text-align: center;">Abstract</p> <p>Wavelets are prominently used for PQ signal analysis, the features that are computed from wavelet sub bands are informative for detection and classification. Energy levels of non-stationary events that occur in PQ signal computed considering wavelet sub bands suffer from shift variant property and hence use of dual tree complex wavelets that supports shift invariance property is used for PQ event analysis. In this paper, PQ event algorithm is developed considering dual tree wavelets and the results are compared with wavelets. Various PQ signals with non-stationary events are analyzed and the shift invariant property of dual tree wavelets is demonstrated to be advantageous in terms of event classification. DTCWT energy levels are capable of differentiating between multiple events as well as different types of sags, swells, harmonics, interrupts and flicker. The classification accuracy using DTCWT energy bands is improved by more than 90%. DTCWT filters selected in this paper are suitable for PQ event detection as well as classification.</p> <p>Index terms: PQ event, DWT, DTCWT, wavelets, decomposition, Shift Invariance.</p>
 <p style="text-align: center;">Kailas S. Patil GICICRST1804070</p>	<p style="text-align: center;">Uwsn Enhanced Routing Protocols Using Mrp Technology</p> <p style="text-align: center;">Kailas S. Patil Research Scholar, E&CE Department, PDACE, Kalaburagi, Karnataka – India</p> <p style="text-align: center;">Abstract</p> <p>The Acoustic Signals Used As Physical Medium For Communication In Under Water Wireless Sensor Networks. Due To the Use of Acoustic Signals in UWSN, It Have The Distinguish Characteristics. The Different Types of Parameter in UWSN'S Are Including High Propagation Delay, Low Bandwidth High Error Rates and Significantly Different from Wireless Sensor Networks. Hence, Designing Communication Protocols, Particularly An Efficient Routing Protocol For UWSN Is A Challenging Issue. Routing Protocols Can Take Advantage Of The Localization Of Sensor Nodes. However, The Localization Itself Is Not Impeccable In UWSN. In This Paper, Therefore Propose An Enhanced Routing Protocol Named MRP (Multi-Layered Routing Protocol) For UWSN. MRP Utilizes Super Nodes In Order To Eliminate The Need Of Localization. MRP Works In Two Phases: Layering Phase And Data Forwarding Phase. During Layering Phase, Different Layers Are Formed Around The Super Nodes. In Data Forwarding Phase, Data Packets Are Forwarded Based On These Layers. Through Simulation Study Using MATLAB Simulator, To Prove That MRP Contributes Significant Performance Improvements Against A Deputy Routing Protocols.</p> <p>Keywords: Underwater Wireless Sensor Networks, Routing, Multilayer, Network Lifetime, Delivery Ratio, Residual Energy.</p>
<p style="text-align: center;">Isah Usman Balan GICICRST1804071</p>	<p style="text-align: center;">Determination Of Serum Electrolyte In Pregnant Women Attending Anti-Natal Care Services In Sir Sunusi General Hospital Kano</p>

	<p style="text-align: center;">Usman Isah Balan Department of Science Laboratory Technology, School of Technology, Kano State Polytechnic</p> <p style="text-align: center;">Umar Aliyu Department of Science Laboratory Technology, School of Technology, Kano State Polytechnic</p> <p style="text-align: center;">ABSTRACT</p> <p>Blood samples collected from pregnant women attending anti-natal care services in Sir Sunusi General Hospital were analyzed for serum electrolytes levels (Na, K and Cl). The level of sodium in the blood samples ranged from 122mmol/L to 151mmol/L The amount of potassium ranged from 2.4mmol/L to 5.2mmol/L While that of chloride ranged between 76mmol/L to 116mmol/L. The results showed electrolytes disturbance in some of the pregnant women as the concentration level was not within the range; the normal range for sodium is 135-145 mmol/L, that of potassium; is 3.5-5.0mmol/L while chloride has the normal range between 98mmol/L and 106mmol/L The disturbance may be due to some certain reasons such as vomiting, low fluid intake, drugs and malnutrition.</p> <p>Keywords: Serum, Electrolytes, Pregnant woman, Blood, Kano State</p>
<p>Abdulwadud Abdulkarim Yusuf GICICRST1804072</p>	<p style="text-align: center;">Adsorption Study Of Pb (Ii) Ion Removal From Lead Solution Using A Blend Of Activated Carbon And Chitosan From Mussel Shells</p> <p style="text-align: center;">Abdulwadud Abdulkarim Yusuf Chemical Engineering Programme, Abubakar Tafawa Balewa university, Bauchi</p> <p style="text-align: center;">Idris Muhammad Misau Chemical Engineering Programme, Abubakar Tafawa Balewa university, Bauchi</p> <p style="text-align: center;">Mohammed Tijani Isa Department of Chemical Engineering, Ahmadu Bello University, Zaria</p> <p style="text-align: center;">Bello Aminu Alhaji Chemical Engineering Programme, Abubakar Tafawa Balewa university, Bauchi</p> <p style="text-align: center;">Sagir Adamu King Fahad University of Petroleum, Saudi Arabia</p> <p style="text-align: center;">ABSTRACT</p> <p>A study was carried out to investigate the adsorption of lead (II) ion on the blend of activated carbon and Chitosan from Mussel shell from lead water solution using the batch adsorption study. The optimum dosage of the chitosan/activated carbon blend was 5g (2.5g activated carbon and 2.5 g chitosan). At optimum dosage, the percentage uptake is 83.75% and 0.134 mg/l of Pb²⁺ was removed while at equilibrium contact time of 120 minutes, the percentage uptake was 98.75%. The data generated were used for isotherm studies and kinetic modelling. The Langmuir isotherm fits best with an R² value of 0.9776 and the adsorption was found to be favourable 0.0842 kJ/mol. Also, the adsorption process follows the Pseudo second order kinetic model with an R² value of 0.9981</p> <p>Keywords: Isotherm, Kinetics, Activated-carbon, Chitosan, Mussel, Lead,</p>

 <p>Laila Sadallah GICICRST1804073</p>	<p>Adsorption.</p> <p style="text-align: center;">Synthesis and functionalization of calcium phosphate nanoparticles for optical applications</p> <p style="text-align: center;">Laila SADALLAH Team Thermo-structural Materials, Polymers and radiochemistry, Laboratory of Engineering and Materials (LIMAT) -FSBM, UH2C. BP. 7955 Casablanca, Morocco</p> <p style="text-align: center;">Hassan HANNACHE Team Thermo-structural Materials, Polymers and radiochemistry, Laboratory of Engineering and Materials (LIMAT) -FSBM, UH2C. BP. 7955 Casablanca, Morocco</p> <p style="text-align: center;">Materials Science and Nanoengineering Department, Mohamed VI Polytechnic University, Lot 660 – Hay Moulay Rachid, 43150 Benguerir, Morocco</p> <p style="text-align: center;">Said GMOUH Team Thermo-structural Materials, Polymers and radiochemistry, Laboratory of Engineering and Materials (LIMAT) -FSBM, UH2C. BP. 7955 Casablanca, Morocco</p> <p style="text-align: center;">Abstract</p> <p>Organic fluorophores have characteristics that limit their effectiveness for their applications, including poor photostability, low luminosity, and limited capacity for multiplexed analysis. To overcome these limitations, the fluorophores were encapsulated by calcium phosphate nanoparticles. Due to their excellent biocompatibility, biodegradability and bioactivity, calcium phosphate nanoparticles are of interest for many biomedical applications. Functionalization of nanoparticles with multi-photon fluorophores is of great interest, mainly for imaging or photodynamic therapy. The aim of our work is to synthesize fluorescent calcium phosphate nanoparticles via the encapsulation of mono and multiphoton organic fluorophores. Thus to follow the release of these fluorophores using spectroscopic methods. The results obtained allowed us to measure the impact of crystallization on fluorescence yields. Similarly, the study carried out on the release of fluorophores has demonstrated that calcium phosphate nanoparticles have a very important potential for applications in imaging and medical therapy.</p> <p>Keywords: Calcium phosphate, Encapsulation, Fluorophores, Functionalization, Nanoparticles.</p>
<p>Aruna Deepthi GICICRST1804074</p>	<p style="text-align: center;">Image compression in Wireless Sensor Networks using Auto Encoder and Restricted Boltzmann Method</p> <p style="text-align: center;">S. Aruna Deepthi Research Scholar, Professor, JNTUA, Anantapuramu, India</p> <p style="text-align: center;">E. Sreenivasa Rao Professor, Vasavi College of Engineering, Hyderabad, India</p> <p style="text-align: center;">M.N. Giri Prasad Professor, JNTUA, Anantapuramu, India</p> <p style="text-align: center;">Abstract</p> <p>Wireless Sensor Networks are used in various day-to-day applications. With advanced technology Wireless sensor networks (WSNs) play a crucial role in</p>

	<p>networking technologies since it can be expanded without communication infrastructures. Most image compression algorithms in WSN are subject to low image quality after the images are decoded or have random image content changes. As the image contains a massive amount of redundancies resulting from the high correlation between pixels, image compression methods are proposed . In this paper Multilayer Restricted Boltzmann Machine (RBM) network and Variational Auto Encoder (VAE) are designed and tested for both Gray (2D) and Colour (3D) images. The proposed variational auto encoder image compression method is compared with multilayer RBM when the layers are 2,4 and 8 and the peak signal-to- noise ratio (PSNR),Signal to Noise Ratio (SNR),Mean square error are compared.</p>
<p>Said Akbar Khan GICICRST1804077</p>	<p style="text-align: center;">Determination Of Selected Heavy Metals In Canal Water And Its Effects On Agricultural Soil And Wheat Crop</p> <p style="text-align: center;">Said Akbar Khan Earth and Environmental Sciences Department, Bahria University Islamabad</p> <p style="text-align: center;">Ammad Zaheer Earth and Environmental Sciences Department, Bahria University Islamabad</p> <p style="text-align: center;">Salim khan Niazi Earth and Environmental Sciences Department, Bahria University Islamabad</p> <p style="text-align: center;">Abstract</p> <p>This study was conducted to determine the heavy metals concentrations in canal water (Gogera Branch Canal) and their effect on agricultural soils and wheat crop at the area of Chak-65 GB in Punjab, Pakistan. The samples of water, soil, plant and grain were collected from the study area and digest according to standard processes and analyzed by using atomic absorption spectroscopy. All samples were analyzed for the subjected heavy metals and their concentration are noted and they were as follow; The Cadmium is ranged from 0.01 to 1.9 mg/L in water samples, 0.08 to 3.08 mg/Kg in soil samples, 0.16 to 0.21 mg/Kg in plant samples and 0.57 to 0.87 mg/Kg in grain samples. The concentration of Chromium is ranged from 0.03 to 1.9 mg/L in water, 55.7 to 68.3 mg/Kg in soil, 0.9 to 1.3 mg/Kg in plant and 1.06 to 3.01 mg/Kg in grain samples. These values were compared with the NEQSS levels of WHO ad FAO for irrigation water, soil, plant and grains. These results show that heavy metals are accumulated in soil and then up take by the wheat plant. These heavy metals are accumulating in the wheat grains, wheat is most consumed crop in Pakistan. These concentrations of heavy metals in wheat grains when consumed give rise to many health risks to human health. Industrial effluents should be treated before dumping into the canal water and concern department should take serious action against them.</p>
<p>Thandar Nwe GICICRST1804079</p>	<p style="text-align: center;">Analysis Of Power Output And Flow Characteristic Of A Small-Scaled Straight Blade Vertical Axis Wind Turbine</p> <p style="text-align: center;">Thandar New Department of Mechanical Engineering, Mandalay Technological University Patheingyi, Mandalay Region, Myanmar</p> <p style="text-align: center;">Myat Myat Soe Department of Mechanical Engineering, Mandalay Technological University Patheingyi, Mandalay Region, Myanmar</p> <p style="text-align: center;">War War Min Swe Department of Mechanical Engineering, Mandalay Technological University</p>

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Abstract

Vertical axis wind turbines (VAWT) can offer many advantages for small-scale wind power electrification. For efficient utilization of the available wind energy, it is imperative to study the behaviour and performance of the wind turbines subjected to aerodynamic and ambient conditions. Due to limitations on experimentation, the computational fluid approach has been used to quantify the wind loads on the blades. This work studies on a small straight bladed or H-rotor type vertical axis wind turbine especially focuses on the flow around and power output of the turbine at various wind speeds with the aim to work in low wind speed region. The power output and flow analysis of the turbine was done in the range of cut-in and rated velocities of 2.6-7.5 m/s in 3D CFD simulation by using commercial software ANSYS 17.0, and compared the results with the theoretical outputs. The results from both analytical and numerical values are in good agreement. In the simulation result, the electrical power output at rated wind velocity was 63W while the targeted theoretical value was 50W. The flow around the turbine was also investigated and it was found that the flow nature of velocity and pressure distribution around the turbine was captured correctly. The highest pressure difference was attained at blade 2 and blade 3 while blade 1 had the lowest pressure difference in all flow velocity conditions.

Keywords- Power output, Small-scale, Straight blade, VAWT, Wind.



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**Effect Of Using Az31b Trimmings As Filler Rod In Gas Tungsten Arc
Welding Of Az31b Alloy**

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Abstract

AZ31B is one of the most widely used magnesium alloy in engineering applications. Gas Tungsten Arc Welding (GTAW) is one of the most economical method for joining AZ31B alloy. In this experimental study, 4 mm thick AZ31B alloy plates were square butt-welded using GTAW. The prime objective of this study was to study the effect of AZ31B trimmings as filler rod on the microstructure and properties of the GTAW welded AZ31B plates. The trimmings for the filler rod were prepared from the 4 mm thick AZ31B plates through electric discharge machine. The effects of the GTAW process on the weld bead, macrostructure, microstructure, micro hardness and tensile strength were investigated. The GTAW yielded good quality welded joint showing a broad Heat Affected Zone having a uniform distribution of intermetallics caused by the heat input during welding. The results showed that increasing welding current led to deterioration of the surface appearance of

	<p>the weld. When the AZ31B plate was welded with GTAW at a weld current of 86 amp (ac) a fine weld was obtained with good tensile strength. The results obtained shows the feasibility of successfully using AZ31B trimmings as filler rod in the event of the non-availability of any commercial filler rod. Keywords: AZ31B, Magnesium, macrostructure, microstructure, tensile strength, filler rod.</p>
<p style="text-align: center;">Thandar New GICICRST1804081</p>	<p style="text-align: center;">Analysis Of Power Output And Flow Characteristic Of A Small-Scaled Straight Blade Vertical Axis Wind Turbine</p> <p style="text-align: center;">Thandar Nwe Department of Mechanical Engineering, Mandalay Technological University Patheingyi, Mandalay Region, Myanmar</p> <p style="text-align: center;">Myat Myat Soe Department of Mechanical Engineering, Mandalay Technological University Patheingyi, Mandalay Region, Myanmar</p> <p style="text-align: center;">War War Min Swe Department of Mechanical Engineering, Mandalay Technological University Patheingyi, Mandalay Region, Myanmar</p> <p style="text-align: center;">Abstract</p> <p>Vertical axis wind turbines (VAWT) can offer many advantages for small-scale wind power electrification. For efficient utilization of the available wind energy, it is imperative to study the behaviour and performance of the wind turbines subjected to aerodynamic and ambient conditions. Due to limitations on experimentation, the computational fluid approach has been used to quantify the wind loads on the blades. This work studies on a small straight bladed or H-rotor type vertical axis wind turbine especially focuses on the flow around and power output of the turbine at various wind speeds with the aim to work in low wind speed region. The power output and flow analysis of the turbine was done in the range of cut-in and rated velocities of 2.6-7.5 m/s in 3D CFD simulation by using commercial software ANSYS 17.0, and compared the results with the theoretical outputs. The results from both analytical and numerical values are in good agreement. In the simulation result, the electrical power output at rated wind velocity was 63W while the targeted theoretical value was 50W. The flow around the turbine was also investigated and it was found that the flow nature of velocity and pressure distribution around the turbine was captured correctly. The highest pressure difference was attained at blade 2 and blade 3 while blade 1 had the lowest pressure difference in all flow velocity conditions. Keywords- Power output, Small-scale, Straight blade, VAWT, Wind.</p>
 <p style="text-align: center;">Kavya S. Keremane GICICRST1804082</p>	<p style="text-align: center;">Molecular engineering of carbazole-based conjugated molecules as potential hole-transporting materials for perovskite solar cells</p> <p style="text-align: center;">Kavya S. Keremane Department of chemistry, NITK Surathkal, Mangalore, India</p> <p style="text-align: center;">Mahdieh Shojaei baghini Department of ECE, NITK Surathkal, Mangalore, India</p> <p style="text-align: center;">Ranjana Shourini Department of Physics, Indian Institute of Technology (IIT) Bombay, India</p> <p style="text-align: center;">Rathnamala Rao Department of ECE, NITK Surathkal, Mangalore, India</p>

	<p style="text-align: center;">Dinesh Kabra Department of Physics, Indian Institute of Technology (IIT) Bombay, Mumbai, India</p> <p style="text-align: center;">Airody Vasudeva Adhikari Department of chemistry, NITK Surathkal, Mangalore, India</p> <p style="text-align: center;">Abstract</p> <p>Over the past two decades, the ever increasing energy demand and continuous depletion of non-renewable resources has forced us to look for a renewable, safe, infinite, low-cost and omnipresent energy sources. In this regard, harvesting of photons from sun to produce electricity has found to be promising way to solve the world energy crisis. As a promising way to convert sunlight into electricity, organometal halide perovskite solar cells (PSCs) attracted worldwide attention due to its predominant merits especially in the aspect of remarkable photovoltaic performance and much potentially low production cost. Further, in order to enhance the performance, several organic molecules have been utilized as a hole transporting materials (HTMs). Among them, the carbazole based heterocyclic conjugated molecules have attracted many researchers due to their design functionality, hole transporting ability and excellent optoelectronic properties. Against this background, herein, we report the design, synthesis and photovoltaic performance studies of a new carbazole-based HTMs carrying 9-(2-ethylhexyl)-9H-carbazole-3,6-dicarbaldehyde scaffold. The newly synthesized molecules CT-1 and CT-2 have been well characterized by various spectral techniques such as FTIR, ¹H NMR and mass spectral including elemental analysis. Further, it's optical and electrochemical properties has been investigated using UV-visible, fluorescence spectroscopy and cyclic voltammetry, respectively. Finally, it has been subjected to DFT calculations in order to obtain its electronic configuration in FMO using Turbo-mole V 7.2 software. The results revealed that, carbazole-based conjugated molecules are a promising class of potential hole-transporting materials for perovskite solar cells.</p> <p>Key words: Perovskite solar cells, Organic HTMs, Carbazole chromophores, DFT</p>
<p>Nitha Ayinippully Nalarajan GICICRST1804062</p>	<p style="text-align: center;">Numerical Method for Analyzing the Source - Sink Flow Certainty in Groundwater Capture Systems</p> <p style="text-align: center;">Nitha Ayinippully Nalarajan Ph.D Research Scholar, EWRE division, Department of Civil Engineering, Indian Institute of Technology Madras, Chennai-600036, India</p> <p style="text-align: center;">Suresh Kumar Govindarajan Professor, Department of Ocean Engineering, Indian Institute of Technology Madras, Chennai-600036, India</p> <p style="text-align: center;">Indumathi M Nambi Professor, Department of Civil Engineering, Indian Institute of Technology Madras, Chennai-600036, India</p> <p style="text-align: center;">Abstract</p> <p>The primary goal for most groundwater analysis is to study the level of vulnerability associated both qualitatively and quantitatively. A new numerical method has been conceptualized based on source contribution fraction and capture fraction for better understanding and assessment of</p>

	<p>groundwater capture systems. The inter-cell flow balances were used to determine the certainty of flow from a source reaching its destination. Results were displayed as color maps of 'capture certainty' (CC) to indicate the certainty of capture from stipulated source to sinks. The concept needs verification with analytical or field problems to verify the use and practical applicability in real situations.</p> <p>Keywords: capture fraction, source contribution fraction, capture certainty, groundwater capture systems</p>
<p style="text-align: center;">K. Neenu GICICRST1804063</p>	<p style="text-align: center;">Groundwater Modeling for aquifer depressurisation in Mining Sites</p> <p style="text-align: center;">K. Neenu Research Scholar, Environmental and Water Resources Engineering, Department of Civil Engineering, Indian Institute of Technology Madras, Chennai – 600036, India</p> <p style="text-align: center;">S. Mohan Professor, Environmental and Water Resources Engineering, Department of Civil Engineering, Indian Institute of Technology Madras, Chennai – 600036, India</p> <p style="text-align: center;">Abstract</p> <p>Mining activity serves as a major contributor to a country's economy. But the mineral extraction process from beneath the earth surface often interfere with groundwater. Removing the overburden material to extract the mineral can cause water from confined aquifers lying below the mineral deposit to burst out and obstruct safe mining operation. The threats caused during the operation can be avoided by depressurising the confined aquifer below by pumping out groundwater and ensuring that water levels in the mining area are within the safe operating limits. This kind of information can be obtained from a simulation model which represents the actual field condition. This study aims at modeling a lignite mine with its deposit nearly 70 m below the ground level. The geological formation is multi – layered with an unconfined aquifer at the top, semi – confined aquifer in between and a confined aquifer at the bottom separated by a thin impermeable layer. The geology of the aquifer is discontinuous making the model more complex. Visual MODFLOW was used to develop the groundwater flow model and to study the impact of depressurisation activities on the existing water levels by taking into account the discontinuity in the formations. The interaction between the layers and the pumping impacts were studied. Various scenarios were analysed to study the impact of depressurization on existing as well as future groundwater levels. The results show that the model is successful in replicating the field conditions and therefore can be used as a predictive tool to arrive at appropriate management decisions.</p> <p>Keywords: Aquifer depressurisation, Groundwater Modeling, Visual Modflow, Water Resources Management</p>
 <p style="text-align: center;">Akshaya Bomanwar YRSICRST1804053</p>	<p style="text-align: center;">Critical appraisal of Building Information Modeling (BIM) for Indian Architects, Engineers, Contractors (AEC) industry</p> <p style="text-align: center;">Akshaya Bomanwar X Semester B. ARCH, National Institute of Technology Raipur, Chhattisgarh, India</p> <p style="text-align: center;">ABSTRACT</p> <p>The Indian Architecture, Engineering, and Construction (AEC) industry has still not been completely successful in the application of Building Information Modeling (BIM). Majorly because many of the members are still not aware</p>

	<p>that BIM can be used for improving the design, construction, and facility management of projects, moreover a higher LOD (level of detail) can be attained. Owing to this, several matters about management ascend during the design. This fact builds the need to standardize and craft guidelines for the implementation of a BIM process in the construction industry, additionally the process needs to be revised, reviewed and the functionality must be rechecked as per the Indian construction scenario. There is a need for a guidance-centered BIM implementation process in India, viewing all buildings as a product of the constantly evolving process. With the help of this research the Indian AEC industry will get ahead of its existing state of infancy in adoption of BIM.</p> <p>Keywords: building information modelling, construction, simulation, efficiency, energy savings, building modelling, energy efficient architecture</p>
<p>Aruna Deepthi Sivaraju YRSICRST1804052</p>	<p style="text-align: center;">Image compression in Wireless Sensor Networks using Auto Encoder and Restricted Boltzmann Method</p> <p style="text-align: center;">S. Aruna Deepthi Asst Professor, Vasavi College of Engineering, Hyderabad</p> <p style="text-align: center;">E. Sreenivasa Rao Professor, Vasavi College of Engineering, Hyderabad</p> <p style="text-align: center;">M.N. Giri Prasad Professor, JNTUA, Anantapuramu</p> <p style="text-align: center;">Abstract</p> <p>Wireless Sensor Networks are used in various day-to-day applications. With advanced technology Wireless sensor networks (WSNs) play a crucial role in networking technologies since it can be expanded without communication infrastructures. Most image compression algorithms in WSN are subject to low image quality after the images are decoded or have random image content changes. As the image contains a massive amount of redundancies resulting from the high correlation between pixels, image compression methods are proposed. In this paper Multilayer Restricted Boltzmann Machine (RBM) network and Variational Auto Encoder (VAE) are designed and tested for both Gray (2D) and Colour (3D) images. The proposed variational auto encoder image compression method is compared with multilayer RBM when the layers are 2,4 and 8 and the peak signal-to-noise ratio (PSNR), Signal to Noise Ratio (SNR), Mean square error are compared.</p> <p>Keywords: RBM, Auto Encoder, VAE, WSN</p>
<div style="text-align: center;">  <p>Nayeem Ahmad YRSICRST1804051</p> </div>	<p style="text-align: center;">Molecular characterization New Delhi metallo-β-lactamase variants NDM-4, NDM-5 and NDM-7 in Enterobacter aerogenes isolated from Neonatal Intensive Care Unit of North India Hospital: A First Report</p> <p style="text-align: center;">Nayeem Ahmad Interdisciplinary Biotechnology Unit, Aligarh Muslim University, Aligarh 202002 India</p> <p style="text-align: center;">Abstract</p> <p>Infections caused by CRE (Carbapenem resistant enterobacteriaceae) are one of most serious health threats for human and animals, worldwide. The carbapenems are often considered as antibiotics of last resort for treatment of bacterial infections. Emergence of New Delhi metallo β-lactamase (NDM) variants causes difficulty to treat infections by physicians in clinical settings. NDM-1 was first identified in Klebsiella pneumoniae isolated from a 59-years old man who returned to Sweden after hospitalization in India in January</p>

	<p>2008. The NDM producing bacteria are resistant to almost all available antibiotics except polymyxins. In this study total 402 Carbapenem Resistant Enterobacteriaceae (CRE) member were recovered from blood and rectal swabs of 1000 infants admitted in NICU of Jawaharlal medical college hospital Aligarh Muslim University Aligarh, India, cabapenemase producers determine by Carba NP phynotype biochemical assay. Out of 402 isolates, many isolates were identified having NDM variants in different species, but 3 of the isolates were identified as E. aerogenes carrying blaNDM-4, blaNDM-5, and blaNDM-7 genes as a first report. These genes were identified by PCR and sequence analysis. The isolates were further characterized to know the plasmid type and genetic environment features, including integron and Is elements. These three E. aerogenes isolates (AK-93, AK-95 and AK-96) were resistant to all β-lactams including carbapenems. The β-lactamase genes blaOXA-1, blaOXA-9, blaSHV, blaVIM were also found to be associated with blaNDM-4 in AK-93 and blaOXA-1, blaOXA-9, blaCMY were found co-associated with blaNDM-5 in AK-95 and with blaNDM-7 in AK-97, identified by PCR analysis. Plasmid based replicon typing (PBRT) revealed plasmids of different incompatibility in Enterobacter aerogenes in each of the isolates (AK-93 AK-95 and AK-96), respectively. Genetic environment analysis revealed presence of bleomycin resistance gene (bleMBL) to downstream of blaNDM and complete ISAbal25 sequence were found to upstream of blaNDM in all three variants of these isolates. This is the first time we identified blaNDM-4, blaNDM-5 and blaNDM-7 in E. arogenes species, isolated from NICU of tertiary care hospital.</p>
<p style="text-align: center;">K. Neenu GICICRST1804063</p>	<p style="text-align: center;">Groundwater Modeling For Aquifer Depressurisation In Mining Sites</p> <p style="text-align: center;">K. Neenu Environmental and Water Resources Engineering Department of Civil Engineering Indian Institute of Technology Madras, India</p> <p style="text-align: center;">S. Mohan Environmental and Water Resources Engineering Department of Civil Engineering Indian Institute of Technology Madras, India</p> <p style="text-align: center;">Abstract</p> <p>Mining activity serves as a major contributor to a country's economy. But the mineral extraction process from beneath the earth surface often interfere with groundwater. Removing the overburden material to extract the mineral can cause water from confined aquifers lying below the mineral deposit to burst out and obstruct safe mining operation. The threats caused during the operation can be avoided by depressurising the confined aquifer below by pumping out groundwater and ensuring that water levels in the mining area are within the safe operating limits. This kind of information can be obtained from a simulation model which represents the actual field condition. This study aims at modeling a lignite mine with its deposit nearly 70 m below the ground level. The geological formation is multi – layered with an unconfined aquifer at the top, semi – confined aquifer in between and a confined aquifer at the bottom separated by a thin impermeable layer. The geology of the aquifer is discontinuous making the model more complex. Visual MODFLOW was used to develop the groundwater flow model and to study the impact of depressurisation activities on the existing water levels by taking into account the discontinuity in the formations. The interaction between the layers and the pumping impacts were studied. Various scenarios were analysed to study the impact of depressurization on existing as well as future</p>

	<p>groundwater levels. The results show that the model is successful in replicating the field conditions and therefore can be used as a predictive tool to arrive at appropriate management decisions. Keywords: Aquifer depressurisation, Groundwater Modeling, Visual MODFLOW, Water Resources Management</p>
<p>Tom Harry GICICRST1804085</p>	<p style="text-align: center;">Teaching history at UBD: my experience</p> <p style="text-align: center;">Tom Harry Ph.D. student with the Department of History Universiti Brunei Darussalam, Brunei.</p> <p style="text-align: center;">Abstract</p> <p>Traditionally, history is taught with a rigid approach where students have to listen to the professor for hours and hours. This helps little to develop cognitive skills that are highly needed for English literature, and classical music. Even Geography, Geology, and Anthropology students are attracted to historical approach that can help them changing of their attitude towards the world that has crazy. This paper aims to build an entirely new theory about how to teach English literature at Universiti of Burmudi. I have examined 4000 students in the class that I teach, and I have interviewed them to understand what they think about gemology and cell biology. I have realized that they are more inclined towards historical anatomy of people. This study has clearly shown that students are mostly devoted to movies that are based on fiction, and have no relevance to any historical content of this planet that we call home. Key words: History, education, culture, in, ruins, research, my, foot, feet</p>
<p>Mohammad Sahrayi GICICRST1804086</p>	<p style="text-align: center;">Reinforcing Integral Abutment Bridges against Earthquake using Finite Element Method</p> <p style="text-align: center;">Mohammad Sahrayi Master of Civil Engineering, Faculty of Structure, Islamic Azad University, Rooden Branch, Roodehen, Iran</p> <p style="text-align: center;">Abstract</p> <p>The integral abutment bridge is a kind of bridge in which the abutment and deck are integrated. This abutment system in the longitudinal direction acts like a rigid frame. The purpose of this study is to investigate the effects of different characters of abutment and bridge included height, width, length and the number of span on the general behavior of bridge under different seismic spectrum and to evaluate its period of time. Software verification is done using field model. Then bridge with different abutments and spans are modeled. Along with the numerical simulations, the strength of bridge is evaluated with survey variable parameters in seismic forces such as Tabas, Parkfield, El Centro. Investigations showed that in the integratal bridge (with two 20-meter span), the amount of base shear have 20 percent increase except for Tabas earthquake. Finally, since it is made in the range of numerical samples that the value of the original periodic time will be shorter than the short period (0 to 20/0), the idea is will not be economically viable for earthquakes with a Fourier spectrum with a maximum relative frequency in the range of frequencies higher than 4 Hz. Also, the observations showed that changing the parameter of the length of the span changed the period of time so that with increasing the length of the span, the amount of period of time increased. However, with the change in the number of span, the amount of period of time did not change significantly, so it can be said that with the assumption of equal span, the time of the main change in traffic is not dependent on its number. With changing the height, the periodic time was</p>

	<p>rapidly increased, so that the spectral acceleration was close to the constant acceleration region, proportionally. Keywords: seismic force, continuous bridge, finite element method, abutment, integral bridge</p>
 <p>K. Neenu GICICRST1804092</p>	<p style="text-align: center;">Groundwater Modeling For Aquifer Depressurisation In Mining Sites</p> <p style="text-align: center;">K. Neenu Environmental And Water Resources Engineering Department Of Civil Engineering Indian Institute Of Technology Madras, India</p> <p style="text-align: center;">S. Mohan Environmental And Water Resources Engineering Department Of Civil Engineering Indian Institute Of Technology Madras, India</p> <p style="text-align: center;">Abstract</p> <p>Mining activity serves as a major contributor to a country's economy. But the mineral extraction process from beneath the earth surface often interfere with groundwater. Removing the overburden material to extract the mineral can cause water from confined aquifers lying below the mineral deposit to burst out and obstruct safe mining operation. The threats caused during the operation can be avoided by depressurising the confined aquifer below by pumping out groundwater and ensuring that water levels in the mining area are within the safe operating limits. This kind of information can be obtained from a simulation model which represents the actual field condition. This study aims at modeling a lignite mine with its deposit nearly 70 m below the ground level. The geological formation is multi – layered with an unconfined aquifer at the top, semi – confined aquifer in between and a confined aquifer at the bottom separated by a thin impermeable layer. The geology of the aquifer is discontinuous making the model more complex. Visual MODFLOW was used to develop the groundwater flow model and to study the impact of depressurisation activities on the existing water levels by taking into account the discontinuity in the formations. The interaction between the layers and the pumping impacts were studied. The results show that the model is successful in replicating the field conditions and therefore can be used as a predictive tool to arrive at appropriate management decisions. Keywords: Aquifer depressurisation, Groundwater Modeling, Visual MODFLOW, Water Resources Management</p>

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