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St. MARTIN'S ENGINEERING COLLEGE

Dhulapally, Secunderabad - 500100
NIRF ranked, NAAC A+ ACCREDITED



Sri. M. LAXMAN REDDY
CHAIRMAN



MESSAGE

I am extremely pleased to know that the Department of Electrical and Electronics Engineering, of St. Martin's Engineering College is organizing Online **“International Conference on Advanced Materials & Processes for Engineering Applications”** during 08th and 9th of July 2022. I understand that the large number of researchers has submitted their research papers for presentation in the conference and also for publication. The response to this conference from all over India and Foreign countries is most encouraging. I am sure all the participants will be benefitted by their interaction with their fellow researchers and engineers which will help for their research work and subsequently to the society at large.

I wish the conference meets its objective and confident that it will be a grand success.

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M. Laxman Reddy

M. LAXMAN REDDY
Chairman



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Sri. G. CHANDRA SEKHAR YADAV
EXECUTIVE DIRECTOR



MESSAGE

I am pleased to state that the Department of EEE Engineering of SMEC is organizing Online “**International Conference on Advances in Electrical and Electronics Engineering**” during 30th and 31st of March 2022. For strengthening the “MAKE IN INDIA” concept many innovations need to be translated into workable product. Concept to commissioning is a long route. The academicians can play a major role in bringing out new products through innovations.

I am delighted to know that there are large number of researchers have submitted the papers on Interdisciplinary streams. I wish all the best to the participants of the conference additional insight to their subjects of interest.

I wish the organizers of the conference to have great success.

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G. CHANDRA SEKHAR YADAV
Executive Director



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Dr. P. SANTOSH KUMAR PATRA
PRINCIPAL



I am delighted to be the Patron & Program Chair for the Online “**International Conference on Advances in Electrical and Electronics Engineering**” organized by the Department of EEE on 30th and 31st of March 2022. I have strong desire that the conference to unfold new domains of research among the EEE Engineering fraternity and will boost the knowledge level of many participating budding scholars throughout the world by opening a plethora of future developments in the field of EEE Engineering.

The Conference aims to bring different ideologies under one roof and provide opportunities to exchange ideas, to establish research relations and to find many more global partners for future collaboration. About 56 research papers have been submitted to this conference, this itself is a great achievement and I wish the conference a grand success.

I appreciate the faculties, coordinators and Department Head of EEE Engineering for their continuous untiring contribution in making the conference a reality.

(Dr. P. Santosh Kumar Patra)
Principal

International Conference On "Advanced Materials and Processes for Engineering Applications " (ICAMP 2022)

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ICAMP_0722_0301

Environmental Impact of MSW Landfills in Arid Climates - Case Study of Mathuradaspura, Jaipur

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ABSTRACT:

Recycled coarse aggregates (RCA) and natural coarse aggregates (NCA) have characteristic structures, such as porosity, water absorption, low surface density, and crush value, approving to studies presented. Selecting suitable raw materials based on concrete's particular show standards, later which designing cost-effective, high-quality concrete utilizing mix proportion methods, is the utmost method to overcome the limitations of design methods, and this presents fresh concepts and design methods. The RCA and NCA surround characteristics, including porosity, water absorption, low surface density, and greater crush value per the research studies. This research works investigate the compressive strength, split tensile strength, and flexural strength of concrete specimens. The NCA has been substituted with 0 percent, 20 percent, 40 percent, 60 percent, 80 percent, and 100 percent by a RCA of construction & destruction (C&D) waste of 30-years-old building and fine aggregate has been substituted with 40 percent of granite cutting waste (GCW). In this research work, the strength of the RCA and GCW concrete were calculated. In this research work that presents the associate the outcomes of the RCA and GCW base concrete of the physical and mechanical properties of concrete

KEYWORDS:

Landfilling; leachate; pollution; methane emission; corrective measures; solid waste management.

ICAMP_0722_0304

Strength Studies on Concrete Containing of Recycled Coarse Aggregate and Granite Cutting Waste as Partial Replacement of Fine Aggregate

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ABSTRACT:

Recycled Coarse Aggregates (Rca) And Natural Coarse Aggregates (Nca) Have Characteristic Structures, Such As Porosity, Water Absorption, Low Surface Density, And Crush Value, Approving To Studies Presented. Selecting Suitable Raw Materials Based On Concrete's Particular Show Standards, Later Which Designing Cost-Effective, High-Quality Concrete Utilizing Mix Proportion Methods, Is The Utmost Method To Overcome The Limitations Of Design Methods, And This Presents Fresh Concepts And Design Methods. The Rca And Nca Surround Characteristics, Including Porosity, Water Absorption, Low Surface Density, And Greater Crush Value Per The Research Studies. This Research Works Investigate The Compressive Strength, Split Tensile Strength, And Flexural Strength Of Concrete Specimens. The Nca Has Been Substituted With 0 Percent, 20 Percent, 40 Percent, 60 Percent, 80 Percent, And 100 Percent By A Rca Of Construction & Destruction (C&D) Waste Of 30-Years-Old Building And Fine Aggregate Has Been Substituted With 40 Percent Of Granite Cutting Waste (Gcw). In This Research Work, The Strength Of The Rca And Gcw Concrete Were Calculated. In This Research Work That Presents The Associate The Outcomes Of The Rca And Gcw Base Concrete Of The Physical And Mechanical Properties Of Concrete

KEYWORDS:

Natural Coarse Aggregate, Recycled Coarse Aggregate, Granite Cutting Waste, Compressive Strength, Split Tensile Strength, Flexural Strength

Novel Method of High Speed Data Transmission Using Li-Fi Technology

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ABSTRACT:

Internet Is The Fundamental Mode Of Communication Which Connects People From All Over The World And They Can Transmit The Huge Data From End To End Using Wi-Fi. But Wi-Fi Is Vulnerable To Third Person Who Can Access It By Radio Waves Passing Through The Walls. So, There Is A Huge Black Hole In This Wi-Fi Technology That Is Security To The User. We May Replace Wi-Fi With Li-Fi Technology To Offer High Density Wireless Data Coverage In Limited Locations. This Is A New Technology That Was Initially Proposed In 2011 By German Scientist Harald Haas. Li-Fi Transmits Data Using An Led Light Bulb That Changes Intensity Quicker Than The Human Eye Can Detect And Provides High Speed Data Transmission Which Is Equal To The Speed Of Light. A Light-Based Wi-Fi System Is Known As Li-Fi. This Technique Is Primarily Used To Transport Data Utilizing High-Efficiency, Long-Lasting, And Dependable Led Lights. With The Increasing Popularity Of Solid State Lighting Devices, Visible Light Communication (Vlc) Technology Is A Cutting- Edge And Positive Technique For Short-Range, High-Speed, And Vast Wireless Information Transfer. In This Paper, We Are Going To Transmit The Data As Audio Signal Which Is Input And This Audio Signal Will Be Delivered By The Speakers

KEYWORDS:

Li-Fi; Wi-Fi; LED; Visible Light Communication; high speed data transmission;

DEVELOPMENT OF SEMI-AUTOMATIC ABRASIVE JET MACHINE

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ABSTRACT:

: In This Paper Wide Application Of Abrasive Jet Machine (Ajm) Is Found In Machining Hard And Brittle Materials. Machining Of Brittle Materials By Ajm Is Due To Brittle Fracture And Removal Of Micro-Chips From The Work Piece. Embedment Of The Abrasive Particles In The Brittle Materials Results In Decrease Of Machining Efficiency. In This Project The Manufacturing Of Semi-Automatic Ajm Has Been Presents. The Parts Are Then Manufactured Indigenously As Per Designed Parameters. The Machine Fabricated And Which Will Be Used Further For Process Optimization Of Ajm Parameters For Machining Of Glass And Ceramics. In Ajm The High Pressurized Fluid Mainly Atmospheric Air Is Mixed With The Abrasive Particle (The Abrasive Used Are Silicon Carbide, Steel Grit, Copper Slag And Aluminum Oxide) Operations Which Can Be Performed By Ajm Are Drilling And Cutting.

KEYWORDS:

brittle materials, abrasive particles, Abrasive jet machine, Non-conventional machining process, Material removal rate, abrasive inlet, mixing chamber etc.

ICAMP_0722_0321

The impact of social distancing on covid-19 in India: an interactive R-shiny dashboard

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ABSTRACT:

Data Analysis And Visualization Are Essential To Present The Results Through Display. It Generates Plots From The Analyzed Data And Provide A Flexible Environment For Modifying The Details Of The Plots As Per The Requirement. Data Analysis And Visualization Plays An Essential Role In Medical Research, Especially In The Data On Covid-19 Diagnosed Cases. An Interactive R-Shiny Dashboard Is Developed For The Data Visualization And Analysis Of Covid-19 Data To Elevate The Impact Of Social Distancing To Reduce The Covid-19 Cases In India. Social Distancing Is One Of The Major Key Aspects To Reduce The Covid-19 Spread In India. This Study Describes The Importance Of Social Distancing. Just Because Of Not Maintaining The Proper Social Distance There Is A Rapid Increase In Covid-19 Positive Cases. This Study Says “How The Social Distance Is Important” And Why It Matters? In Addition, This Study Specifies “What Is Corona Virus?”, How The Virus Spread And The Precautions Need To Be Taken By The People. Different Types Of Testing And Vaccine Information Is Also Provided.

KEYWORDS:

Data analysis, Data Visualization, Dashboard, Social Distance, COVID-19;

ICAMP_0722_0324

Single and Multi-Hand Gesture based Robotic Car Control

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ABSTRACT:

In This Research Article, Authors Have Engineered The Model To Control Robotic Car With Single And Multi-Hand Gestures Based On Artificial Intelligence And Machine Learning Approach. A User Centric Representation Of This Features Is Obtained By Using Hand Detection And Hand Gesture Recognition Mechanism. We Have Assigned The Desire Hand Gestures To Move The Robotic Car In 360 Degrees. In This Research Work, We Can Control The Robotic Car Using Single Hand As Well As Multi Hands Gesture-Based Approach. Our Motive Of This Research Work Is To Reduce Human Efforts By Controlling The Robotic Car Through Hand Gestures Based On Aiml Techniques. The Developed Model Will Be Very Helpful To Control Vehicle Through Hand Gestures Which Can Help In Many Sectors Like Testing Of Vehicle, Helping Physically Challenged Person Especially Speech Disorder Persons To Communicate With Gesture Display, A Layman Can Control Wheel Chair Through Gesture, Operate Military Vehicles Etc. We Have Made Gesture Out Of Human Hand Landmarks Through Mediapipe And Simulate Different Gestures Out Of Those Hand Landmarks. Each Combination Of Hand Landmarks Performs Different Actions To Control The Robotic Car In Multiple Directions.

KEYWORDS:

single hand gesture; multi hand gesture; finger detection; palm detection; robotic car control;

ICAMP_0722_0326

Quantitative Analysis and Validation using Computational Approach for Hollow Spherical Roller Bearing 22212E

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ABSTRACT:

A Bearing Is A Part Of The Machine That Lowers Friction Between Moving Parts By Limiting Relative Motion To Only The Desired Motion. Bearing Debility Is Affected By A Several Factors, Also The Roller–Raceway Interfaces Are The Most Significantly Stressed Areas In A Bearing, Minimizing The Hertz Contact Stresses There Has Been A Main Objective. The Analytical And Finite Element Approaches Have Been Used To Evaluate The Deformation, Contact Stress And Contact Pressure Of Spherical Roller Bearings 22212E. It Has Been Observed That The Acquired Results Employing The Theoretical And Fe Analysis Methods Have Quite A 9 Percent Variation. Based On Results, Confirming The Fea For Solid Spherical Bearing With A Theoretical Approach Using The Same Operating Parameters. Furthermore, The Finite Element Approach Has Been Employed To Analyse How The Hollow Spherical Rolling Element Enhanced The Bearing Performance. In Ansys, Multiple Hollowness Percentages Ranging From 0% To 90% Of The External Diameter Of The Spherical Roller Were Analysed In Order To Determine The Optimal Hollowness For Bearing Service Life. It Has Been Discovered That Bearings With A Hollowness Of Roughly 62 Percent Have The Lowest Contact Stress, Which Extends The Bearing's Fatigue Life.

KEYWORDS:

Hertz contact stress, Hollow spherical roller element, FE Analysis, Optimal Hollowness, Contact Stress

Experimental Determination of Flexural Strength of Bholuka Bamboo (*Bambusa Balcooa*) of Assam, India

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ABSTRACT:

In Everyday Life Bamboo Occupies A Prominent Place And Is Extensively Used For Both Structural And Non-Structural Purposes. Being A Material That Compares Favourably With Timber In Strength, Bamboo Is Increasingly Being Used In Many Structural Applications Like Posts, Pole Fencing, Scaffoldings, House Building, Etc. Bamboo Has Been Used Worldwide In Various Construction Works As An Alternative To Steel And Wood As Bamboo Is More Fibrous And Has More Tensile Strength Than Steel. Possibilities Of Construction Of Boats With Bamboo Using Traditional Knowledge Enriched With Advanced Techniques Could Be Visualized And Eventually Local Bholuka Bamboo Of Assam Was Found To Be Very Useful For Construction Of The Boat Hull Using The Lower Thick Stem Of The Whole Bholuka Bamboo. The Work Investigates The Bending Strength Of The Locally Grown Bholuka Bamboo. Lime Water Treated Bamboo Stems Are Shaped Roughly Into Square Logs By Cutting Arcs From Two Sides. Both Circular And Square Section Stems Of Gauge Lengths Over 300Mm Are Deflected In Universal Testing Machine (Utm). The Direct Bending Strength Test Gives An Ultimate Breaking Load And Ultimate Stress As 13.10Kn And 4Mpa For The Circular Cross Section Whereas 15.85Kn And 5Mpa For Square Cross Section Respectively. Three Point Bending Test Conducted On Instron-Dynamic Utm On Specimens Taken From Freshly Felled Culms, Preferably From The Lowest Section Of The Culm Containing Nodes At Two Ends. Half Section Of The Total Length Of 345Mm Is Considered For The Test. The Flexural Test For I-Section Beams Of The Bamboo Yields A Modulus Of Elasticity Of 3762.94Mpa Which Is 87.5% Less Than Charotar Bamboo And 57.9% Less Than Moso Bamboo.

KEYWORDS:

Bholuka Bamboo; Hull; Lime water; Gauge length; Culm; Instron Dynamic UTM; I-section

ICAMP_0722_0330

Investigation on Transport properties of GdMnO₃ based bilayer thin films

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ABSTRACT:

Two Heterostructures (Al-Zno/Gdmno₃ /SrTiO₃ And Zno/Gdmno₃ /SrTiO₃) Were Fabricated Using Pulsed Laser Deposition System. The Lattice Parameters Of The Hexagonal (Al-Zno And Zno) And Orthorhombic (Gdmno₃) Films Are Determined From The Analysis Of The X- Ray Diffraction Patters. To Study The Surface Morphology Of Prepared Heterostructures Atomic Force Microscopy (Afm) Were Performed Which Reveals That Both Heterostructures Have Homogenous Island Type Of Growth. To Understand The Transport Behaviour Of Semiconductor-Ferromagnetic (S-F) Bilayers/Films The Resistivity Measurement And Field Dependent Dielectric Measurements Show And One Variation/Comparison In Resistivity And Dielectric Behaviour Of Both Heterostructures Discussed Based On Variable Rang Hopping (Vrh) Model And Universal Dielectric Response (Udr) Model.

KEYWORDS:

Multiferroics, Bilayers, Resistivity, Variable Range Hopping (VRH), Universal Dielectric Response (UDR)

ICAMP_0722_0331

Application of Biomaterials and Finite Element Analysis in Dentistry – A Review

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ABSTRACT:

Implantology In Dentistry Incorporating Biomaterials And Simulation Techniques Essentially, Had Become Greatly Acceptable Procedure For The Reconstruction Of The Human Apparatus In Modern Era. To Achieve Success Of Treatment Method, Biomaterial Selected Should Be Compactable And Should Show Positive Biological Response With The Surrounding Environment. Prediction Of Biomechanical Parameters In Clinical Practices Affecting Implantology Is Difficult And Challenging In Vivo. Advancements In Engineering Innovation And Research Made Finite Element Analysis (Fea) Have Proven To Be One Of The Promising Simulation Techniques To Understand The Clinical Variables And Decrease Mechanical Failures. This Review Provides Insights On Biomaterials And Fea In Implant Dentistry And Help To Identify Gaps In Future Research.

KEYWORDS:

Implantology; Biomaterial; Finite element Analysis; Dentistry

ICAMP_0722_0333

EFFECTIVE DENOISING OF HYPER SPECTRAL IMAGES USING WAVELET AND CONTOURLET TRANSFORMS

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ABSTRACT:

Image Denoising Is Considered To Be Paramount Processing Mechanisms For Images. During The Steps Of Acquisition And Transmission, The Noise May Be Added Up With The Original Image Which Devalues Its Quality And Hence There Is A Need For An Effective Denoising Strategy To Enhance The Grade Of Images Which In Turn Makes To Use Them For Copious Processing Mechanisms Like Classification, Recognition Etc. In This Paper, Two Distinct Approaches For Effective Denoising Of Color And Hyper Spectral Imagery Are Presented Namely Wavelet And Contourlet Transforms. This Paper Includes Implementation Of Wavelet Based Denoising Using Discrete Wavelet Transform, Dual Tree Complex Wavelet Transform And Adaptive Threshold Based Denoising. The Implementation Of Contourlet Transform Is Based On Adaptive Threshold Based Approach. The Efficacy Of Denoising Using These Transformations Is Specified In Terms Of Various Picture Quality Indices.

KEYWORDS:

Contourlet transform, Dual tree complex wavelet transform, Hyper spectral imagery, Picture quality indices, Wavelet Transform

The joining of magnesium and aluminium alloys by inclined arrangement of explosive welding

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ABSTRACT:

Multi-Material Lightweight Frames Are Growing Rapidly In A Variety Of Industries, Specifically Where Weight Reduction, Performance Improvement, And Cost Savings Are Required. Magnesium Alloys (Az31B) Fulfil The Requirements, But They Are Prone To Corrosion. The Joining Of Magnesium And Aluminium Alloys Is Being Suggested As An Effective Approach To This Issue. In This Study, Aluminium Alloy And Magnesium Alloy Plates Were Joined Successfully Through The Inclined Arrangement Of The Explosive Welding Method. The Interface Microstructure And Mechanical Properties Of Joined Plates Were Examined. The Microstructural Studies Illustrated The Development Of A Wavy Interface With The Al 12 Mg 17 Intermetallic Compound. The Maximum Microhardness Values Were Obtained Close To The Interface Due To Extreme Plastic Deformation. The Shear Strength And Ram Tensile Strength Of The Al 5052/Az31B Welded Plate Were Obtained 93 Mpa And 146 Mpa, Respectively.

KEYWORDS:

Mechanical properties; Explosive welding; Mg alloy; Al alloy; Microstructure

ICAMP_0722_0335

Phyllanthus Emblica fruit extract assisted green synthesis of ZnO nanoparticles: Thermal, Vibrational, Optical and Electrical Properties

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ABSTRACT:

Synthesis Of Zinc Oxide Nanoparticles By Green Synthesis Technique Using Phyllanthus Emblica Fruit Extract Is Reported In This Communication. Very Stable Nanoparticles Of Zinc Oxide Are Obtained Using Zinc Nitrate And Phyllanthus Emblica Fruit Extract. We Explored The Role Of Biological Components, Essential Phytochemicals As Reducing Agent As Well As Capping Agent And Also As Solvent System. Xrd, Fesem, Tg-Dta, Uv-Vis Spectroscopy, Ftir Spectroscopy And Impedance Spectroscopy Were Used To Investigate The Structural, Microstructural, Thermal, Optical, Vibrational, And Electrical Transport Properties Of Synthesised Zno Nps. The Pristine Hexagonal Wurtzite Structure Is Confirmed By The Xrd Results. Fesem Confirms The Formation Of Quasispherical Nps. The Edax Analysis Reveals The Purity Of Zno Nps. The Presence Of Zn-O Stretching Vibration In The Prepared Nps Is Revealed By Ftir Analysis. Uv-Vis Curve Shows The Optical Response Of Zno Nanoparticles And Having The Optical Bandgap 3.29 Ev. The Dielectric Measurements For Synthesised Zno Nps Were Carried Out In The Ranges Of 20Khz To 2Mhz. The Acquired Experimental Results Show That Dielectric Constant, Dielectric Loss And Impedance All Are Frequency Dependent, Indicating The Possible Device Applications Of This Materials.

KEYWORDS:

Green Synthesis, Dielectric Studies, electric modulus, Complex Impedance Analysis, Johncher's power law

ICAMP_0722_0336

An LSTM Based Auto-encoder for Exploring Temporal Dynamics of Myoelectric Signal

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ABSTRACT:

An Efficient Myoelectric Based Prosthetic Control System Based On Electromyogram (Emg) Relies On The Relevant Features Extracted From The Emg Signal And Appropriate Classifier Into Which The Data Is Fed With. Traditional Handpicked Feature Fails To Extract Intelligent Information In A More Intuitive Way. The Advent Of Artificial Intelligence (Ai) Reformed The Pattern Recognition Era, By Gathering More Relevant Information From The Physiological Signals, Utilizing State-Of-The Art Methodologies. Recently, Deep-Learning Approaches Revolutionized The Pattern Recognition Field And Found To Be More Prominent For Emphasizing The Temporal Characteristics Of The Signal. An Autoencoder (Ae), Being An Unsupervised Learning Technique Learns The Features, Concurrently Reducing The Feature Space. Whilst The Long Short-Term Memory (Lstm) Architecture, Being A Recurrent Network Extracts The Long-Term Temporal Dynamics Of The Data. This Paper Presents An Lstm Based Autoencoder, Which Alleviates The Curse Of Dimensionality Reduction And Capturing The Long-Term Temporal Information, Which Provides A Significant Improvement Over The Traditional Feature Extraction Methods. The Mes Experimental Data Was Collected From 30 Intact Subjects From The Forearm With Eight Channels Using Duo-Trode Ag-Agcl Electrodes.

KEYWORDS:

Electromyogram; Autoencoder; LSTM

ICAMP_0722_0338

Fractal Analysis of Sentinel-1 Synthetic Aperture Radar (SAR) Imageries of Bhopal and Udaipur Regions of India

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ABSTRACT:

Active Methods In Microwave Remote Sensing Are Significant For Earth Observations. These Methods Are More Popular Due To Providing Data Day And Night And Irrespective Of Weather Conditions. The Backscattering (Σ_0) Images And Their Interpretation Are Crucial For Monitoring And Assessment Of Earth Surfaces Like Soil, Biomass, Water Bodies, Etc. The Analysis Of These Images By Using The Fractal Approach Is Reported In This Paper. Sentinel-1 Level-1 Data Product With Interferometric Wide Swath (Iw) And Ground Range Detected (Grd) Is Processed To Get Backscattering (Σ_0) Images. These Images Are Processed For Bhopal And Udaipur Regions In India. The Fractal Dimensions Of These Images Are Determined By Which Box-Counting Method Is Employed. The Self-Similarities, Complexity, Irregularity, And Textural Details Of Irregular Structures Are Studied For These Images. This Study Is Useful For Understanding Geomorphologic And Topographical Features Of Earth Surfaces.

KEYWORDS:

Fractal dimension, remote sensing, self-similarity, backscattering images

Experimental Study on the Influence of Turning Process Parameters on Surface Texture and Material Removal Rate of composites, using Grey Relational Taguchi Technique.

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ABSTRACT:

Now A Days Industries Are Looking To Manufacture The Components That Are Having Good Surface Texture And Should Have More Life To Be In Working Condition .The Automobile Industry And Aerospace Industries Are Looking For New Materials And Methods To Increase The Good Surface Texture With The Optimum Resource Utilization To Prepare The Components. To Achieve This It Is Essential To Go For Cnc Machine, New Methods And Also New Materials. At Present Industries Are Using Alloys And Composite Materials In Widely To Manufacturing Their Components. To Meet The Needs Of Industries It Is Essential To Study The Surface Roughness, Material Removal Rate Of New Materials, As These Output Responses Are Vital For Materials To Use In Industries. In This Study My Work Is On Composites A-L6061/Sicp/Gr (Hammc). To Machine The Samples Of Composite, Cnc Turning Operation Using Of Carbide Single Point Cutting Tool. The Objective Is To Find The Influence Of Machining Parameters On Surface Roughness, Material Removal Rate And Sustain Of Material Under Hot Working Conditions. By Using, Taguchi Technique, Numbers Of Experiments Are Designed Based On Input Parameters And Level Of Parameters. Grey Relational Analysis Was Also Used To Optimize The Parameters For The Multi Performance Characteristics Of Minimum Surface Roughness And Maximum Material Removal Rate In Machining.

KEYWORDS:

Stir Casting; CNC lathe; Al6061/SiCp/Gr; MRR; GRA.

ICAMP_0722_0343

CFD Analysis of Karanja Oil Methyl Ester (KOME) Blend B20 and Hydrogen Using ANSYS-Fluent

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ABSTRACT:

Combustion And Emission Characteristics Are Plays An Important Role In Diesel Engines, Which Have Higher Combustion Efficiency Meets The Stringent Emission Norms. Combustion Is A Very Complex Phenomenon, Which Cannot Be Analyzed Easily With Analytical Method Or Different Visualization Technique. Computational Fluid Dynamics (Cfd) Has Becoming Useful Tool In Understanding The Fluid Dynamics Of Ic Engines For Design Purposes. In The Current Study, Cfd Code Is Used To Perform 3D Simulation Of Mixture Formation, Combustion And Emissions Of K20 And K20 With Hydrogen Fuels Simulated By Applying The Ansys-Fluent Non- Premixed K-E Rng Model With Combustion Chamber Moving Mesh. The Parameters Like Pressure, Temperature, Parcel Diameter, Co, Co₂ And No_x Generated Inside The Combustion Chamber Is Compared With K0. The Variation In The Combustion Behavior Is Find When The Fuel Is Used Like K0, K20 And K20 With Hydrogen. Finally, The Emission Results Of Simulation Are Validated With Experimental Results. The Variations Of Cfd And Experimental Results Of Emissions Are Find Acceptable.

KEYWORDS:

Combustion, Emission, CFD, ANSYS, Karanja Oil, Hydrogen;

Fabrication and Characterisation of GFRP Composite as Skin Material of Sandwich Structure

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ABSTRACT:

Sandwich Structures Are Being Widely Used In Many Engineering Applications Because Of Their High Strength, Stiffness, And Stiffness-To-Weight Ratio. This Work Focuses On Fabrication And Characterization Of Glass Fibre Composite Which Can Be Used As Skins Material Of Sandwich Structure For Engineering Applications. To Fabricate The Glass Fibre Reinforced Polymer (Gfrp) Composite, The Glass Fibres, Epoxy Ly 554 And Binder Ar 953 Are Considered. The Epoxy And Binder Is Mixed With A Proportion Of 1:10. The Composite With Different Thicknesses Are Prepared By Considering Number Of Glass Fibre Layers And Epoxy Matrix. The Hand Layup Process Is Used To Fabricate The Gfrp Composite. The Microstructure Of The Gfrp Composite Is Extracted By X – Ray Diffraction Test On Various Samples. Various Tests Have Been Conducted To Investigate The Mechanical Properties Of The Glass Fibre Reinforced Polymer (Gfrp) Composite. From The Experiments It Has Been Observed That The Composite Has Good Mechanical Properties. The Results Show That The Composite Can Be Used As The Skin Of The Sandwich Structure With High Strength And Stiffness- To-Weight Ratio.

KEYWORDS:

GFRP; X – Ray Diffraction; Composites; Glass Fibres; Stiffness-to-weight ratio;

ICAMP_0722_0346

Analysis of infilled steel frames subjected to lateral loading

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ABSTRACT:

In Recent Days Earthquake Resistant Design Of Structure Has Earned A Lot Of Scope As Earthquake Has Become More Common. Lateral Loading Behaviour And Energy Absorption Capacity Of Monolithic Steel Framed Structures Is Significantly Affected By Presence Of Infill Which Adds To The Bracing Of The Structure, Researchers Developed New Methods Of Seismic Analysis To Analyse The Behaviour Of Structure During Occurrence Of An Earthquake. Performance Based Seismic Design Gives Methodology For Accessing The Performance Of Structure Occupancy, Life Safety Or Collapse Prevention Level. A Non- Linear Static Pushover Analysis Can Be Used To Analyse The Inelastic Response Of Structure To Lateral Load Or Displacement. In The Present Research A 3D Model Of G+8 Story Steel Framed Building Is Considered For Seismic Design And Performance Evaluation. The Model Was Analysed Using Etabs Software By Response Spectrum Method For Zone V According To Is 1893-2016. The Performance Is Accessed By Capacity Spectrum Method Using Non-Linear Pushover Analysis. The Result Of All Models Are Analysed And Compared In Terms Of Base Shear, Story Displacement, Pushover Curve, Spectrum Curve, Performance Point Of The Structure. Overall Performance Of The Structure Is Found In Safer Limits

KEYWORDS:

Infills, Base shear, Pushover analysis, Capacity spectrum, Performance point.

ICAMP_0722_0349

Investigation of Troubleshooting in Polarization and Power Density Curves in Processes of Microbial Fuel Cells

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ABSTRACT:

Microbial Fuel Cells (Mfc) Are Suffering From Low Power Output And Power Density Due To Many Losses And Leads To Troubleshooting While Operating Under A Process For Any Application. This Study Investigates The Reasons For Troubleshooting And Identify The Various Losses Through An Illustration Of Lab Scale Air Cathode Mfc. The Maximum Achieved Current Is 7.88 Ma Corresponding To Maximum Power Of 6.21 Mw Against 100 Ω External Load Resistance For Air Cathode Mfc. The Maximum Power Density Achieved By Air Cathode Mfc Is 1465 Mw/M² At 100 Ω . The Calculated Internal Resistance Of Cell Of 162 Ω Based On The Maximum Theoretical Power From Standard Potentials Of Electrodes, Maximum Power Based On Ocv And Then Actual Achieved Power. The Investigation Concludes That Overpotentials Of Electrodes And Ohmic Losses Are The Two Significant Losses Which Needs To Be Reduced For Enhancement Of Power Output Of Mfc. Achievement Of Standard Polarization Curve Is Possible Through Supervision Of These Troubleshooting.

KEYWORDS:

Microbial fuel cell; cell voltage; current; open circuit voltage; power density; polarization curve

ICAMP_0722_0350

Machining investigation of textured tungsten carbide tools

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ABSTRACT:

Dry Machining Is Viable Substitute To The Adverse Effects Of Cutting Fluids On The Environment. However, Dry Machining Increased Adhesion And Friction Between The Machining Surfaces That Leads To Rise In Surface Temperature And Hence The Tool Life Gets Reduced. To Overcome This, The Concept Of Texturing On Tool Surfaces Was Introduced. These Textures Were Found To Be Efficient In Reducing Adhesion And Friction Between The Machining Surfaces. This Ensued Increase In Tool Life And Decrease In Tool Wear. This Paper Presents The Effect Of Surface Textures (Inclined, Crossed And Parallel) On The Machining Performance Like Material Removal Rate (Mrr) And Tool Wear Rate (Twr) Of Tungsten Carbide Tools. For This, The Turning Operations Were Performed In Lathe Machine Following Taguchi'S L 9 Orthogonal Array With Three Control Factors And Three Levels Each, Viz. Spindle Speed (290, 480 And 700 Rpm), Feed Rate (0.06, 0.14, 0.2 Mm/Rev) And Depth Of Cut (0.2, 0.4, 0.6 Mm). It Has Been Observed That Inclined Textured Tools Have Highest Mrr Followed By Parallel And Crossed Textures, Respectively. On The Other Hand, Inclined Textured Tools Have The Lowest Wear Rate Followed By Crossed And Parallel Textured, Respectively.

KEYWORDS:

Material Removal Rate; Tool Wear Rate; Surface texturing; Machining

ICAMP_0722_0353

Business Sustainability and Impact of MUDRA Financing in an Emerging Economy: A Study on Micro and Small Enterprises

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ABSTRACT:

This Article Investigates The Influence Of Mudra On Small And Micro Businesses In Terms Of Revenue Generation, Business Development, Quality Of Life, And Job Creation. The Study Is Socioeconomic In Nature. The Mean Difference Approach Was Used To Analyses Quantitative Data, While The Relative Significance Index Method Was Used To Analyses Qualitative Data. The Paper Utilized Schedule To Conduct Personal Interviews With 384 Individuals To Acquire Data Using Convenience Sample. It Was Discovered That The Initiatives Were Somewhat Effective In Delivering Loans To The Msme Sector. Enterprises Gain From Collateral-Free Mudra Loans In Terms Of Revenue Growth And Company Development. However, There Was No Major Influence On Job Creation Or Living Standards, As Shown By Data Obtained From Respondents As A Result Of The Mudra Loan. In Addition, No Substantial Improvement In The Respondents' Human Development Index Was Discovered. According To The Information Provided By The Respondents, No Substantial Increases In Food Quality Or Nutrition Were Discovered. Women Entrepreneurs Have Not Reached Financial Independence. The Policy Implications For The Government And The Bank Are Examined At The Conclusion Of The Article. The Study Is Conducted In Visakhapatnam City.

KEYWORDS:

Mudra loan, Standard of living, Income generation, Business expansion, SMEs, Employment generation;

ICAMP_0722_0355

A Novel Cloud Steganography for Secure Communication using Snaky Coder Technique

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ABSTRACT:

KEYWORDS:

Index Terms—Cloud Computing; Dynamic Analysis; Image Steganography; Data Hiding; Data Storage.

Development Of Versatile Home Fitness Equipment

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ABSTRACT:

Fitness Is One Of The Necessities Of Our Life. Fitness Tells About Our Health And Gives Us A Good Appearance. Fitness Doesn't Depend On Age, The People Who Don't Have Time To Visit The Fitness Center Do Other Things To Maintain Their Fitness Either By Diet Or Cardio Exercise Though It Keeps Them Maintain Their Weight. It Doesn't Develop The Muscles And Doesn't Give A Muscular Appearance. For Obtaining A Muscular Appearance People Must Either Go To The Gym Or Want To Set Up A Home Gym, Setting Up A Home Gym Costs A Lot And Occupies More Space. The Developed Product Mostly Focuses On Home Gym Setup At Low Cost And Less Space. The Proposed Work Is On The Design And Analysis Of Multifunctional Fitness Equipment. The Product Consists Of Dumbbell With Free Weights, A Centre Rod, A Bend Bar, A Weight Hanger, And Locking Pins. By Assembling The Dumbbell With A Centre Rod, It Can Be Used As A Barbell Rod, By Assembling The Dumbbell With A Bent Rod It Can Be Used As An Ez Bar, Dumbbell Without Free Weights And With A Weight Hanger Can Be Used As A Forearm Roller And Dumbbell Can Be Also Used As Abs Roller. So, With A Single Product With A Different Combination, The Developed Product Can Use 5 Different Types Of Equipment. Static Structural Analysis Is Also Done For The Product To Ensure Its Safety.

KEYWORDS:

Dumbbell rod; Barbell; Ez bar; Forearm roller; Abs roller; Free weights;

ICAMP_0722_0357

Experimental Investigation and micro structural analysis study of ceramic-coated IC engine cylinder liner for Thermal properties evaluation

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ABSTRACT:

In The Automotive Industry, The Primary Objectives Are To Bring Down The Fuel Consumption And Boost Power. The Diesel Engine Has The Best Performance Of Any Conventional Internal Combustion Engine Because Of Its Extraordinarily High Compression Ratio. Gasoline Engines Consume More Fuel Per Unit Of Power Than Diesel Ones, Whilst The Two Have The Same Performance. Only 40% Of The Power Generated By An Engine Is Utilized For Productive Purposes On Average. Thirty Percent Of The Remaining Heat Is Lost Through The Exhaust, And Another Thirty Percent Is Dissipated As Heat Losses By The Cooling System. Ceramic And Ysz Coatings Are Applied To The Cylinder Liners And The Piston Head To Transform The Heat Generated By The Combustion Process Into Meaningful Mechanical Work. As A Result, The Engine's Heat Transmission Will Be Reduced, Increasing Efficiency. The Higher Gas Temperature Is Expected To Minimize The Concentration Of Incomplete Combustion Products At The Expense Of An Increase In Nitrogen Oxides (Nox). Scanning Electron Microscopy (Sem) And Optical Microscopy Studied An Engine Cylinder Liner's Top-Ring Reversal Point Surface Texture. Experiments Were Done On A Single Spark Ignition Engine During The Break-In Stage And The Texture Of The Cylinder Liner Is Studied.

KEYWORDS:

Internal combustion engine cylinder liner; Ceramic and YSZ Coatings; Scanning Electron microscopy; Micro structural analysis.

ICAMP_0722_0360

Determination of anisotropy for transverse sheet metal welds

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ABSTRACT:

Sheet Metal Welded Blank Consists Of Two Or More Sheet Metals Which Are Welded Together Prior To Forming. The Sheets Which Are Welded Together May Be Different In Size, Shape And Even In Thickness Too. The Blanks May Be Also Differing In Sense Of Coating And Material Grade. The Different Blanks Are Welded Together To Form In To One Continuous Blank. A Sheet Metal Welded Blank Reduce The Manufacturing Costs And Weight And Also Improves The Quality Of The Components. As The Demand For Different Types Of Sheet Metal Welded Blanks Is Increasing, The Effects Of Difference In Material Properties, Mechanical Properties, Forming Characteristics, Weld Properties And Its Orientation On Blank Formability Become Important In Various Forming Processes. In This Paper Plastic Strain Ratio For Transverse Sheet Metal Welds Is Determined. When The Application Of The Load Is Perpendicular To The Gauge Length Or Weld Sheet Metal They Are Known As Transverse Sheet Metal Welds. The Tensile Specimens Of Sheet Metal Welded Blanks Of Mild Steel, Austenitic Stainless Steel 304 (Ass 304) With Reference To Roll Direction $0^\circ, 45^\circ$ And 90° Are Prepared And Welded Using Tungsten Inert Gas Welding. Anisotropy (R) Is Categorized Into Normal Anisotropy And Planar Anisotropy. Evaluation Of Normal Anisotropy ($R\&\#39;$) And Planar Anisotropy (Δr) Depends On Orientation Of The Material With Respect To The Rolling Direction. Anisotropy (R) Is Estimated For Transverse Sheet Metal Welds Of Specimens Along The Direction Of Rolling, At An Angle Of 45° With Respect To Rolling Direction And Perpendicular To Rolling Direction. Normal Anisotropy And Also Planar Anisotropy Are Obtained In Transverse Sheet Metal Welds. Normal Anisotropy($R\&\#39;$) Determines The Formability Of The Sheet, Greater $R\&\#39;$ Value Is Favorable. Planar Anisotropy (Δr) Determines Whether Earring Will Occur When The Sheet Metal Blank Deforms Into Cup. If $\Delta r = 0$, No Ears Are Formed And No Wrinkles Are Formed In The Cup, Ear Height Increases With Δr . For Optimal, Higher In $R\&\#39;$ And Lesser In Δr For Sheet Metal Forming Process.

KEYWORDS:

sheet metal welded blanks, anisotropy, normal anisotropy and planar anisotropy

VEHICLE SURVEILLANCE SYSTEM USING NUMBER PLATE RECOGNITION

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ABSTRACT:

Surveillance System Is A One Of The Pre-Dominant Parameter In Our Daily Life. The Methodology Which Used Here Is, In The Entire Vehicle, The Number Plate Recognition Mechanism Is Introduced By Means Of A Camera Interfacing With Raspberry Pi Which Uses The Image Processing Technology To Scan The Number Plate And It Adds Automatically To The Database. Image Processing Follows The Pattern Recognition, Optical Character Recognition Which Can Be Done By Means Of Neural Networks. By Using The Gsm Module It Sends The Information Of The Vehicle Where It Got Scanned At Last By Sending The Sms To The Registered Mobile Number. This Proposed Methodology Of Surveillance System In Vehicles Is To Identify The Stolen Vehicle. A Snap Of The Number Plate Is Taken And Automatically Added To The Database. By Using The Gsm Module It Tracks The Location Of The Number Plate Scanned And After Scanning It Sends An Sms To The Registered Mobile Number. The Proposed Methodology Of A Surveillance System In Vehicles Is To Identify The Stolen Vehicle.

KEYWORDS:

Number plate recognition, Pi Camera, image processing, Global system for Mobile communication (GSM), Raspberry Pi.

Design and development of agricultural quadcopter with an optimized frame using generative design.

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ABSTRACT:

Optimization Plays A Vital Role In Aircraft And Aerospace Components Weight Reduction. In Present Research, We Have Designed An Agricultural Quadcopter Using A Generative Design Approach. The Drone Arms Were Designed Using Generative Design In Autodesk Fusion 360 Software With An Optimized Structure. The Thrust Force Of 12N Which Is Generated By The Motors Of The Drone Was Calculated By Considering All The Conditions Like The Weight Of Each Component Including The 1L Pesticide Spraying Unit, Thrust To Weight Ratio, And The Safety Factor. The Generative Design Process Was Executed Based On Three Phases In Which The All-Design Parameters Like Design Space, Design Conditions, Material, And Manufacturing Methods Were Set And It Computes An Optimized Design, Generated According To Defined Parameters. The Simulation Results Of Generative Design Were Compared With The Traditional Dji F450 Quadcopter Arm For Weight, Maximum Von-Mises Stress And Maximum Displacement. The Comparison Showed That Generative Design Arm Was Found Lighter In Weight Than The Dji F450 Arm By 34%. Finally, The Generative Arms Were Manufactured Using Additive Manufacturing Process Using The Printing Parameters Like Wall Layer Thickness, Infill Density, Supports, Etc.

KEYWORDS:

Optimization, Agricultural Quadcopter, Generative Design, Autodesk Fusion 360, Weight reduction, Additive Manufacturing.

Analysis Of Renewable Power Generation By Statistics Method

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ABSTRACT:

: Renewable Energy Or Non-Conventional Energy Is Obtained From Nature And Are Inexhaustible In Nature Like Wind Energy And Solar Energy. Non-Conventional Energy Is A Suitable In Place Of Fossil Fuel And It Is Usually Less Harmful To The Nature. Renewable Energy Is Flourishing, Due To The Less Costs As Compared To Conventional Sources And Supply On The Goal Of A Cleanest Energy For Future. Solar, Wind, Hydro, Biofuels, And Other Non- Conventional Energy Sources Are At The Foundation Of The Change To A Less Emission And Much More Ecological Energy System. Solar Power Production And Wind Power, In Particular, Have Seen Remarkable Growth In Recent Years, Owing To Regulatory Backing And Steep Cost Reductions. Statistics Deals With The Few Steps Like First Gathering Of Data, Then Second Step Is Organizing, Third Step Is Analyzing, Interpreting, And Presenting Of Data. It Is Traditional To Start With A Statistical Population Or Model To Be Researched When Applying Statistics To A Scientific, Industrial, Or Social Problem. In This Paper Statistic Procedure Are Used For Showing The Production Of Power Of Various Years From Non-Conventional Sources.

KEYWORDS:

Environment, Renewable, Power, Generation, Sustainable, Sustainable development.

ICAMP_0722_0374

“Investigation of Biofuel blended with Ethanol in Aluminium alloy Piston and its Performance Evaluation in Twin Cylinder CI Engine”

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ABSTRACT:

The Present Paper Focuses Mainly On The Use Of Biofuel Blended With Ethanol In Aluminium Alloy Piston And The Ci Engine Facilitated With Common Rail Direct Injection (CrDi Engine) Was Investigated Powered Different Biofuels Blended With Ethanol In Terms Of Performance And Emission Characteristics. The Results Obtained From The Experimentation Showed That The Best Rape Seed Oil Mixed With Ethanol In Aluminium Alloy Piston For Lesser Emissions For The Fuel Combinations Of 50% Biofuel Mixed With 50% Ethanol Utilized In The Investigations.

KEYWORDS:

CI Engine, Biofuels, aluminium alloy piston,Ethanol;

ICAMP_0722_0377

Modelling and Optimization of Reinforced Nano Silica Polymer

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ABSTRACT:

Materials Used To Make The Various Parts Should Be Able To Withstand The Wear And Tear For Longer Product Life. Polymers Are Preferred To Use For Some Of The Applications Because Of Its Lesser Weight And Its Thermophysical And Mechanical Properties. The Present Work Is To Investigate The Abrasive Rate Of Reinforced Nano Silica Composite Which Is Extracted From Sugar Cane Bagas By Pin On Disc Testing. The Factors Influences The Abrasive Rate Of The Composites Are Predicted By Multi-Linear Regression Analysis. The Impact Of Each Parameter Of Reinforcement, Input Load And Sliding Speed On Abrasive Behavior Is Identified By Analysis Of Variance. It Is Identified That In The Dry Sliding, Wear Of The Epoxy Silica Composite Is Inversely Proportional To Thickness And Constituents Of Reinforcement. The Weight Bearing Strength Of The Exopy Has Been Improved With The Addition Of Nano Silica. Micro-Structural Study Is Done By Sem To Investigate The Wear Behavior Of Epoxy Nano Silica Composite With Non-Lubricant Sliding Circumstances.

KEYWORDS:

thermophysical properties, epoxy silica, reinforcement, microstructure.

ICAMP_0722_0381

SMART HYBRID TWO-WHEELER

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ABSTRACT:

: In This Paper You Can Find The Ideology Of The Implementation Of 'Hybrid Mechanism' Into The Geared Two- Wheeler. Since The Petrol Prices Are Graphing Up Day By Day, Middle Class Citizens Are Switching From Motorbikes To Evs. So, Instead Of Completely Shifting To An Evs We Are Trying To Convert The Vehicle Into Hybrid. Hybrid Electric Vehicles (Hevs) Are Powered By More Than One Power Source. The Goal Of This Project Is To Convert The Old Motorcycles Into Hybrid Vehicles. Regenerative Hub-Wheel Is Incorporated In Our Hybrid Two- Wheeler, Where The Energy Produced By Rotation Of Wheel Due To Ic Engine Is Used To Store The Energy In The Battery With The Help Of Controller, And Then The Stored Energy Is Reused To Run The Vehicle. Then There Will Be A Change In Working From Normal Vehicle To E-Vehicle.

KEYWORDS:

HEVs, EVs, IC engine, Hub wheel, etc.,

A review paper based on the development of VOC sensors

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ABSTRACT:

In The Current Situation With The Increase In Industries And Vehicles, Pollution Is Also Rising Day By Day. With The Increase In The Pollution. Rising Pollution Also Increases The Level Of Gases. Some Of The Gases Are Co₂, Methanol, Propanol, Butanol, Etc. Multiple Gases That Are Present Inside A Human Body Are Taken Out Via Breath. But Different Gases Create A Different Types Of Harm To The Human Body. Increment Of The Particular Gas Breath-Out From A Human Body Can Give An Assumption To The Patient Whether He/She Is Ill Or Not, And By Getting The Range Of Particular Gas He/ She Can Consult The Particular Doctor. Every Gas Can Be Linked With Particular Diseases Such As Lung Cancer Patients Can Have A Higher Range Of Propanol Gas Whereas An Increment In The Acetone Gas Is A Sign Of Patient Can Have Diabetes Or Can Suffer From Diabetes In The Future. So In This Paper, We Will Get To Know About Different Links Between Gases With Different Diseases, Making A Gas Sensor That Will Be Able To Detect Various Gases.

KEYWORDS:

VOCs; PANI; human body; process flow

IoT Based Manhole Monitoring System

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ABSTRACT:

A Smart City Is The Future Goal Of Clean And Better Public Services. Underground Infrastructure Is An Important Factor To Consider When Launching A Smart City. The Monitoring Of The Water Supply System Is Critical To Maintaining The City Clean And Hygienic. Due To The Ineffectiveness Of Physical Manipulation This Results As Un-Dealing With Issues That Slow Down Water And Require Longer To Fix. To Address All These Issues A System Based On A Wireless Sensor Network Comprised Of Built-In Sensor Nodes Has Been Developed. When The Water Flow Level Is Lowered The Suggested System Sends Low-Cost, Low-Maintenance Iot-Based Real-Time Notifications Over The Management Channel. This Approach Lowers The Danger Of Mortality For Fishermen Who Clean Subterranean Canals While Also Benefiting The Community. Manholes Are Not Effectively Checked In Developing Countries. These Unsecured Manholes Can Endanger Lives In A Number Of Ways. The Article Describes An Intelligent Automatic Manhole Monitoring System That Detects Dangerous Gases And Temperatures Within The Manhole, As Well As The Lack Of A Hole Cover, And Emits An Alarm To Passers-By Alerting Authorities To The System's Status. The System Has The Potential To Enhance Overall Environmental Quality. The Technique Was Used To Perform Automatic Manhole Monitoring In Order To Assess Suggested Enhancements.

KEYWORDS:

Drainage Level; Smart City; Water flow level;Manhole Monitoring;

IMPLEMENTATION OF DATA ANALYSIS FOR SMART FARMING BASED ON IOT

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ABSTRACT:

Our Country's Fastest-Growing Industry Is Agriculture. Farming Contributes To About A Third Of The State's Capital In India, Where About 70% Of The Population Relies On It. Agricultural-Related Problems Have Been Some Of India's Biggest Obstacles To Development. Agricultural Modernization Via Modernizing Traditional Farming Strategies Is The Best Way To Solve This Problem. Following This, These Venture Goals Depict The Importance Of The Sensor And Track The Temperature And Moisture. Dimension Of These Factors The Usage Of Those Sensors In Agriculture May Be Referred To As Clever Agriculture. Consequently, This Modern Agriculture Can Impact The Planet In Immeasurable Approaches. It Improves The Yield Of Crops Of All Kinds, Reducing The Dependence On Insecticides, Lowering Operational Charges, Optimizing Water Usage And Ensuring Higher Land Management And Crop Rotation. To Ensure Higher Farming Strategies And To Get The Most Yield With Fewer Sources Using Conversation Generation We Can Display Stay Discipline In Situations To Take Corrective Motion. For This Reason As Development On This Subject The Paper Gives About The Image Processing Strategies And Numerous Sensors For The Improvement And Yield Of Plants By Detecting The Diseases Of The Crop.

KEYWORDS:

Smart Farming; Soil Moisture Sensor; pH Sensor; Temperature Sensor;

IoT based Smart Street Lighting Operation and Air Quality Control

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ABSTRACT:

The Research Is Based On The Concept Of Smart City Comprises The Energy Efficient Operation Of Street Lights Measuring The Air Pollutants And Control The Pollutants To Improve The Air Quality Index. It Is Primarily Built On The Concept Of Piezoelectric Effect And Photo Voltaic Cells. It Uses Iot To Build A Method For Smart Avenue Lights Systems Alongside Real-Time Online Tracking Of Air Pollutants. Free Electrical Energy Science From Photo Voltaic Cells And Piezoelectric Effect Became The Basis Of The Independent Framework For The Proposed Device. It Well Manoeuvres The Street Bulbs In Particular Based Absolutely On The Movement Of Vehicles And Daylight Through The Infrared (Ir) And Light Detection Resistor (Ldr) Sensors. Moreover, A Web Based Monitoring Arrangement Is Used For Identifying Faulty Street Bulbs With The Assistance Current Flow. Based On The Wide Variety Of Automobiles Surpassed At Some Stage In The Dark, Street Bulbs Dare Operated At 2 Specific Potency I.E., From 50% To 100% With The Intensity Of 50% With Inside Missing Of Automobiles Whilst Working At 100% When Vehicle'S Approach. This Dimming Operation Now No Longer Best Complements The Lifestyles Span Of Streetlights However Additionally Permits Substantial Conservation Of Electricity By As Much As 80%. Besides, Actual Online Air Pollution Tracking Allows The Government To Take Appropriate Steps Whenever Air Quality Index Reaches An Undesired Level And Requires Immediate Purification System To Control And Improve The Air Quality.

KEYWORDS:

Smart Streetlamps, Air Quality Measurement and Control, Piezoelectricity, Solar cells, IoT.

ICAMP_0722_0388

Dynamic Mechanical Behavior of a Nano Sized Alumina Fiber Reinforced Epoxy Hybrid Composites

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ABSTRACT:

Several Researchers Have Spent The Last Few Years Investigating The Use Of Natural Fibers As Load-Bearing And Wear- Resistant Elements In Composites. Because Of Their Low Cost, Ability To Recycle, And Ability To Compete In Terms Of Strength Per Weight Of Material, The Usage Of Such Materials In Composites Has Increased. However, Those Materials Do Not Yet Meet The Requirements For Substituting Typical Filler Composites. Nano Composites Are Materials Made By The Combination Of Nanoparticles With A Little Amount Of Another Component. This Is A Fast Growing Branch Of Nanotechnology. The Nano Substance Considerably Improves The Original Material's Thermal And Electrical Conductivity, Including Its Mechanical Strength. A Nano Composite Is A Material That Combines A Polymer Matrix With Fibers, Platelets, Or Particles. With A Nanometer (Nm) Scale Dimension (10^{-9} M). As A Result, In The Current Study, An Attempt Was Made To Build A New Alumina Fiber Filler Reinforced Epoxy Hybrid Nano Composite And To Investigate Its Dynamic Mechanical Behavior. As A Result, This Study Looked Into The Dynamic Mechanical Evaluation Of Nano-Sized Alumina Fiber Reinforced Epoxy Hybrid Composites Arising From The Inclusion Of Alumina Nano Fibers As Filler And Made Utilizing The Compression Molding Technique. Alumina Nanofiber Concentrations Were Changed. The Effects Of Different Nano Alumina Nano Fiber Compositions On Dynamic Mechanical Analysis Results Such As Storage Modulus And Damping Factor Were Investigated. Finally, The Insertion Of Nano Fibres Improved The Glass Transition Temperature Significantly.

KEYWORDS:

Nano alumina fibers, epoxy, dynamic mechanical analyzer.

ICAMP_0722_0389

DEVELOPMENT OF E GLASS AND RUBBER POWDER COMPOSITE MATERIAL

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ABSTRACT:

: In This Paper The Fabrication Of The Composite Made Up Of E-Glass And Recycled Rubber Powder Is Illustrated. Composites Are Materials Which Are Produced From Two Or More Constituent Materials. Composite Materials Play A Major Role In Our Lives. Composites Can Be Used As The Replacement Of Metals Due To Their High Strength And Light Weight. The Advantages Of Using These Recycled Rubber Powder And Glass Fiber Are Environmental Gains, Reduced Energy Consumption, Light Weight, Insulation And Sound Absorption Properties. The Composite Is Made Up Of Glass Fiber As The Matrix And Micronized Rubber Powder (Mrp) Obtained From Old Tires As Filler. The Composite Is Made Using The High Compression Hand Layup Method. The Fabricated Composites Are Characterized By Flexural, Hardness And Tensile Testing As Per Atsm Standards To Find The Influence Of Rubber Powder As Filler Material On Mechanical Properties Of Glass Reinforced Epoxy Composites.

KEYWORDS:

Composite materials, Rubber powder, Glass Fiber Sheet, Hand layup Method, Light weight.

ICAMP_0722_0390

FABRICATION, TESTING AND ANALYSIS OF ALUMINUM 2024 METAL MATRIX COMPOSITES

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ABSTRACT:

: In The Field Of Material Science And Engineering, There Is A Great Impact Ever Since The Invention Of Composites Materials. High Strength And Lightweight Remain The Winning Combination That Propels Composite Materials Into New Areas. The Composite Materials Replace Conventional Materials Like Steel, Cast Iron And Aluminum Alloys By Its Superficial Properties. As Literatures Were Collected, It Could Be Found That Metal Matrix Composites Are Under Serious Consideration As Potential Candidate Materials To Replace Conventional Materials In Aerospace And Automotive Applications. In This Project, Composite Material Based On Aluminum Alloy (Al 2024) Reinforced With 10% Volume Fraction Of Silicon Carbide Particulates (Si C) And 5 % Volume Fraction Of Graphite Particles Is Produced By Stir Casting Method. The Fabricated Composite Is Tested In Order To Find Tensile Strength, Hardness, Micro Structure And Analysis Is To Study On Cracking Behavior.

KEYWORDS:

Composites materials, conventional materials, metal matrix composites, reinforcement, fabricated composite.

ICAMP_0722_0391

ANALYSIS AND EXPERIMENTAL INVESTIGATION OF WELD CHARACTERISTICS FOR A SINGLE PASS TIG WELDING USING SS304 MATERIAL

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ABSTRACT:

: Manufacturing Industry Has Taken Advantage Of The Tig Welding To Join The Thin Section. High Quality Weld For Stainless Steels And Non-Ferrous Alloys Are Also Be Obtained With This Technique. However, In Comparison To Arc Welding Processes The Tig Welding Has Lower Productivity Due To Shallow Penetration, Which Confined Its Application Only To Thin Section. From The Industrial Point Of View, Stainless Steel 304 Is A Very Commonly Used Material Due To Its Property Of Resistant To Corrosion And Better Creep Rupture Strength. Stainless Steel Is Extensively Used For Various Applications In Chemical, Petrochemical, Fertilizer, Food Processing, Nuclear Industries And In Many Other Major Industrial Operations. The Analysis And Optimization For Joining Material Grade Ss304 Of Stainless Steel By Using Tig Welding Process And Mechanical Testing. Scope Of Tig Welding Has Been Increased In Various Engineering Field Like Aerospace And Hazardous Environments Necessitate Fully Automated Systems. In This Experiment Welding Is Done Using Tungsten Electrode By Using Ss304 Material As Filler Material. The Shielding For The Welding Is Done By Inert Gasses Such As Aargon Etc. Where The Material Is Surrounded By Gas And Filler Material The Welding Takes Place. Then The Properties Of The Material Are Known By Mechanical Tests Such As Tensile Test ,Macrostructure Test , Bend Test , Radiography Test And Vickers Hardness Test. And The Crack Analysis Is Done.

KEYWORDS:

Radiographic test, macrostructure test, bend test, tensile testing, Vickers hardness test, crack analysis.

INVESTIGATION OF FRICTION STIR WELDING OF DISSIMILAR MATERIALS

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ABSTRACT:

: In Many Fields, Such As The Aerospace Industry, Acquiring High-Quality Weld Is Considered Challenging With Conventional Joining Techniques. This Issue Appears At Some Materials, Especially Those That Have Low Melting Temperature. Friction Stir Welding Is Counted As One Of The Most Significant Developments In Welding Techniques. Fsw Process Is An Innovative Solid-State Joining Technique Which Is Also An Environmentally Friendly Technique. The Process Involves Versatility And Energy Efficiency Used To Generate A Good Collection Of Mechanical Properties. Fsw Processes Were First Applied On Aluminum Alloys Because Of Their Low Melting Temperatures And Were Found To Be An Effective Technique. The Objective Of The Current Work Is To Develop A Model To Form The Aluminum Weldments Of Aa 5052 & Aa 6061 To Investigate The Mechanical Properties Of The Weldments. In Present Work Parameters Were Studied For Friction Stir Welding Of Aa 5052 & Aa 6061 And Welding Properties Were Evaluated On The Basis Of Tensile Strength, Impact Strength And Micro-Hardness Of Welding Joint.

KEYWORDS:

Tensile test, Impact test, AA 5052 & AA 6061, Micro hardness test.

ICAMP_0722_0393

ANALYSIS AND EXPERIMENTAL INVESTIGATION OF WELD CHARACTERISTICS FOR A TIG WELDING WITH SS304L & SS410

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ABSTRACT:

: The Analysis And Optimization Joining Two Similar Grade Ss410 & Ss304L Of Stainless Steel By Using By Tig Welding Process And Mechanical Testing. Scope Of Tig Welding Has To Be Increased Various Engineering Field Like Aerospace And Hazardous Environments Necessitate Fully Automated System. In This Work Experiment Has To Be Carried Out On Ss410&Ss304L Stainless Steel Plate Are Using Tungsten Inert Gas Process The Argon Gas Are Using Panned Of Experiments Stainless Steel Specimen.In The Welding Industry The Common Operation Of Dissimilar Part With Heating The Material Applying Pressure Or Using The Filler Material Increasing Productivity With Less Time Of Cost Current Gas Flow Rate Of Welding Speed Responsive Parameter Welding Speed Hardness Of Testing The Weldment Ss410 And Ss304L Are Using Tig Welding. Two Different Grade Of Two Plates Of Welding Are Successful To Weld Of Stainless Steel And Ultrasonic Testing, Uradiographic Testing Micro Structure Testing Experimental Work Is To See The Effect Of Pulsed Current On The Characteristics Of Weldment.

KEYWORDS:

Radiographic testing, micro structure testing, Ultrasonic testing, tensile testing, crack analysis.

ICAMP_0722_0394

AN MODELING OF ALUMINIUM HE30 METAL USING ABRASIVE WATER JET MACHINE

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ABSTRACT:

: This Work Presents A New Predictive Model Of Abrasive Waterjet (Awj) Machining Of Aluminium He30 Plate. As Awj Is A Complicated Multi-Input Multi Output Machining Process. The Model Is Developed Using Artificial Neural Network (Ann). A Feed Forward Neural Network Based On Back Propagation Was Made Up Of 4 Input Neurons, 1 Hidden Layer With 10 Hidden Neurons And 2 Output Neurons. The Ann Training Set Was Generated By Extensive Experimental Work. The Tests Considered Four Process Variables. The Studied Awj Process Variables Are Traverse Speed (T), Water Jet Pressure (P), Standoff Distance (S), And Abrasive Flow Rate (Ma). The Considered Process Parameters Are Surface Roughness (Ra) And Material Removal Rate (Mrr). The Ann Model Was Trained And Tested. The Ann Succeeded To Model The Awj Process By Extracting The Process Parameters From Process Variables With A Regression Factor Above 90%. This Paper Is A Step Forward To Model And Control The Awj Machining Process.

KEYWORDS:

Abrasive water jet machine, aluminium HE30, Artificial neural network, surface roughness (Ra), material removal rate.

ICAMP_0722_0395

DEVELOPMENT OF BAMBOO FIBRE AND E - GLASS COMPOSITE MATERIAL

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ABSTRACT:

: In This Paper, The Fabrication Of The Composite Is Made Up Of Bamboo Fiber And E- Glass Is Illustrated. Composites Are Materials That Are Produced From Two Or More Constituent Materials. In Recent Days There Has Been Greater Importance To The Development Of The Natural Fiber Reinforced Polymer Composites Because Composite Materials Play A Major Role In Our Lives. Composites Can Be Used As The Replacement Of Metals Due To Their High Strength And Lightweight. The Advantages Of Using These Bamboo Fibers And E-Glass Are Environmental Gains, Reduced Energy Consumption, Lightweight, Insulation, And Sound Absorption Properties. The Composite Is Made Up Of Glass Fiber As The Matrix And The Bamboo Fiber Mat Is Made Up Of The Natural Bamboo Tree. The Composite Is Made Using The High Compression Hand Layup Method. The Fabricated Composites Are Characterized By Flexural, Hardness, And Tensile Testing As Per Atsm Standards.

KEYWORDS:

Composite materials, Bamboo Fibre mat, E-Glass fiber, Hand layup Method.

DEVELOPMENT OF CFRP COMPOSITES USING CARBON AND BASALT

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ABSTRACT:

: In Recent Times, Increase In The Use Of Eco-Friendly, Natural Fibers As Reinforcement For The Fabrication Of Lightweight, Low Cost Polymer Composites Can Be Seen Globally. One Such Material Of Interest Currently Being Extensively Used Is Basalt Fiber, Which Is Cost-Effective And Offers Exceptional Properties .The Prominent Advantages Of These Composites Include High Specific Mechanical,Physical And Chemical Properties, Biodegradability, And Non-Abrasive Qualities. Carbon Fiber Has The Properties Of High Strength, High Modulus, High Temperature Resistance, Corrosion Resistance, Fatigue And Creep Resistance, Electrical Conductivity, And Thermal Conductivity. It Is Mainly Used For The Preparation Of Composite Materials. Cfrp Means Carbon Fiber Reinforced Polymer (Cfrp) Is One Of The Composite Materials Which Is Used In Both Repairing And Strengthening Of Reinforced Concrete Structures. In This Project ,We Would Like To Prepare A Carbon Basalt Composite To Understand The Mechanical, Thermal And Chemical Resistant Properties Achieved For Applications In Medical,Aerospace And Automotive Industries.

KEYWORDS:

Carbon Fiber Reinforced composites, Carbon, Epoxy, Basalt, Low cost polymer

ICAMP_0722_0397

Text Detection and Recognition of Characters in Medical Prescription

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ABSTRACT:

Among Millions Of Individuals Throughout The World Are Blind Or Visually Handicapped. Visually In Able People'S Lives Are Significantly Impacted By Their Inability To Read. The Pro- Posed Technology Is Cost-Effective And Assists Visually Challenged Individuals In Hearing Text. This Project'S Core Aim Is To Employ Optical Character Recognition To Turn Text Characters Into Audio Signals. The Text Is First Preprocessed, And Then Each Character Is Segmented For Recognition. Following Segmentation, The Letter Is Extracted And The File Containing The Text Is Resized. The Audio Signal Is Then Created From The Text File. All Of The Preceding Processes Will Be Carried Out In Python.

KEYWORDS:

OCR, Segmentation, Text Extraction, Templates, TTS, PYTHON

ICAMP_0722_0398

Experimental investigation of cutting conditions in turning of Al-MMC

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ABSTRACT:

.Machining Of Aluminium Metal Matrix Composite (Al-Mmc) Is One Of The Challenging Tasks Due To Its Properties. Prediction Of Optimum Machining Conditions By Systematic Way Is A Difficult Task Which Can Be Used For Improve The Performance Of Machining As Well As Sustainability Assessment In This Investigation, Turning Operation Is Performed On Al-Mmc Using Different Machining Conditions Such As Dry Condit.Ion, W Et Condition And Solid Lubrication. Taguchi L9 Orthogonal Matrix Is Considered For Performing The Experiments. Cutting Speed, Feed Rate And Depth Of Cut Are Considered As Input Parameters. Output Parameter Considered Is Machined Surface Roughness. Taguchi Procedure Is Adopted For Finding Optimum Process Parameters And Its Significance. The Result Revealed That Solid Lubrication Is Provided Better Surface Finish Than Dry And Wet Conditions. It Is Observed That Lower Value Of Surface Roughness By Reducing The Frictional Coefficient In Solid Lubrication Than Dry And Wet Conditions. This Work Is Used To Find Out The Suitable Machining Conditions By Statistical Approach.

KEYWORDS:

Turning, Al-MMC, Cutting conditions, Taguchi

ICAMP_0722_0400

Experimental Investigation and Optimisation on effect of process parameters while machining CFRP by AJM

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ABSTRACT:

: In This Experimental Work Presents The Effects Of Process Parameters On Material Removal Rate In Ajm During Machining Of Cfrp Composite. Abrasive Jet Machining (Ajm) Removes Material Through The Action Of Focused Beam Of Abrasive Jet Directed At The Work Piece The Resulting Erosion Caused By Impact Of High-Speed Jet, Can Be Used For Cutting And Drilling Processes. Abrasive Jet Machining (Ajm) Is A Kind Of Micro Blasting Process, This Method Is Mostly Suitable For Hard And Brittle Materials Like Glasses, Ceramics And Composites. For This Experimental Work Carbon Fiber Reinforced Polymers (Cfrp) Composite Used It Consists Of Two Parts, A Matrix And A Reinforcement. In Cfrp The Reinforcement Is Carbon Fiber And Matrix Is Usually A Polymer Resin, Such As Epoxy, To Bind The Reinforcement Together. For This Experimental Work Type Of Abrasive Particles Commonly Used Is Silicon Carbide (Sic). Here The Process Parameters Are Air Pressure, Abrasive Flow Rate, Nozzle Diameter And Stand Of Distance. This Work Includes That Creation And Analysing Of Response Surface. From This Experiment The Overall Performance Of Parameters On Metal Removal Rate (Mrr) Of Work Piece Is Investigated.

KEYWORDS:

abrsive jet machine, abrsive particles, material removal rate, carbon fiber reinforced polymer, reinforcement etc.

ICAMP_0722_0402

Improving and modifying the design of workstations in a granite and marble units by using ergonomics tool REBA

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ABSTRACT:

Small Scale Industries Are The Backbone For The Growth Of Indian Economy Workers Well-Being Is Highly Associated With The Productivity And Cost Benefits Of Small Scale Industries. Musculoskeletal Disorders(Msd'S) Are The Most Common Work Related Universal Problem'S Which Evolves At Different Workplaces.Various Msd Symptoms Are Experienced By The Workers While Performing Their Tasks In Bad Work Postures And These Are Associated With Long Term Risks And Injuries.Musculoskeletal Disorders (Msd) Are A Major Cause Of Work Related Disabilities And Injuries In The Developed And Industrially Developing Countries (Andersen And Gaardboe, 1993; Choobineh Et Al., 2004; Kaergaard And Andersen, 2000). Work-Related Musculoskeletal Disorders (Wmsds) Have Become One Of The Main Focuses In The Area Of Occupational Disease Prevention.Among The Various High Performing Sectors In The Indian Economy, The Mining Industry Of Which The Marble, Granite And Stone Market Is One Such High Performing Sector.The Explicit Research Gaps Identified From The That Wrmsds Occurrence And Prevalence Of Risk Factors For Upper Extremity Regions Among Workers Working Manually In A Granite Or Marble Cutting, Dressing And Finishing Industries Is Very High And Remained Untouched Till Date And Not Yet Been Studied So Far In This Sector. This Research Study Is An Attempt In That Direction. The Ergonomic Risks In The Granite And Marble Units Include Spinal Problems, Skin, Hearing And Injuries, As A Consequence Of Work Exposed To High Temperature From The Sun, Noise, Vibrations, Chemicals, Electrical, Among Other Factors, Even Occurring Accidents. The Aim Of This Paper Is To Identify Ergonomic Hazards That Occur In The Workstations Within The Area Of Granite And Marble Units So As To Evaluate The Different Postures Of Workers Such As Position Of Trunk, Neck And Legs And Arm, Forearm And Wrist When Performing Their Work By The Ergonomic Tool Reba. The Analysis Of These Work Postures Will Help Us In Understanding The Ergonomic Conditions Of Workstations. One Way To Achieve Is By Ergonomic Measures That Can Lead To Evaluate Working

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Postures And Physical Workloads For The Task Under Consideration To Prevent Ergonomic Injuries Which May Lead To Msd'S .Once The Potential Risks Have Been Identified And Analyzed, Then The Ultimate Objective Of This Research Is To Find Solutions And To Suggest Changes That Improve The Workstations To Reduce Injuries And Work Related Musculoskeletal Disorders And Contribute To Better Working Postures And Ultimately Resulting Into Improved Labor Productivity, Better Product Quality ,Reduced Absenteeism And Workers Well Being And Satisfaction. Typically, These Improvements, Are Implemented At Low Cost

KEYWORDS:

Musculoskeletal disorders ; postural analysis ;ergonomic risks assessment ;ergonomics interventions ; REBA method

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