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1.	**Authors:** Nilesh P. Patil, V.A. Kulkarni **Paper Title:** Measurement Variation Analysis and Uncertainty Estimation in Single Cylinder Engine block using Coordinate Measuring Machine	

Abstract: Due to the measurement errors objectively existing, measurement result deviates from ‘‘true value” of the measurand. As measurement devices also shows measurement errors, a measurement result will never be exact. This means there will always be a measurement uncertainty that must be taken into account while evaluating conformance of products to tolerances. If the measurement uncertainty is neglected, this can result in false rejection or false acceptance of products, with possibly far-reaching consequences. Measurement uncertainty determination for coordinate measuring machines is difficult because of the many uncertainty contributors such as CMM hardware errors, temperature, measurement strategy etc. that are involved and these are affecting on the performance of the CMM which is nothing but the uncertainty involved in the process. This paper indicates what the uncertainty in the measurement is, standard types of uncertainty and how to calculate the budget for uncertainty with standard component i.e. single cylinder engine block assembly. With reference to the Guide to the expression for uncertainty in measurement (ISO GUM), the process is followed with Type-A and Type-B standard uncertainty by the statistical analysis of series of observations taken and by means other than the statistical analysis of series of observations.by analyzing the results, we had found that the max. Expanded uncertainty for bore diameter, concentricity &cylindricity is observed as ± 2.9331 μm, ± 2.9721 μm & ± 2.9250 μm respectively.

Keywords: Coordinate Measuring Machine (CMM), ISO GUM, Measurement uncertainty, required accuracy, Uncertainty Analysis

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2.	**Authors:** Harsheeta Shah **Paper Title:** Quick Drying of Cement	

Abstract: Cement is a special blend of fast-setting cements, sand and gravel designed to set hard in approx. 20 to 40 minutes.Quick drying cement is useful for a number of jobs, including setting posts in the ground for fencing or for repairing cracks and holes in exterior walls. Several research projects have been carried out to investigate the moisture control process at the jobsite and the effect of moisture on cement while construction. The main goals of these projects have been how to avoid moisture problems during the building process on a jobsite, how to evaluate beforehand the drying time of cement and how to measure the moisture of structures. In the different countries, the moisture control of structures is done by using the relative humidity (RH) method.. Fast drying cement has been used for the floors of buildings and on different construction sites in Portland. By using high quality cement the risk of mould growth can be decreased not only during the building process but also during the occupancy of the building. The fast strength development of rapid drying cement can also be utilized especially during the winter in cast on site frames.

Keywords: Cement, water content, concrete

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3.	**Authors:** Meenakshi Sharma, Suminder Kumar **Paper Title:** Distributed GA (Genetic Algorithm) Implementation with ABSN Framework for Analysis and Disease Prediction	

Abstract: Wireless sensor network (WSN) is the huge area of research in association with the medical field for delivering various kinds of medical application which uses WSN as major part of the application but the goings on researches are still suffering from efficient and the flexible data management techniques. This area of research is still having lack of effective, flexible, scalable and secure information management. In the medical vast amount of sensitive data is generated which needs secure and authorize access but all the existing framework cannot completely resolves this problem. Although they did very important contribution in this area of research and try to provide very promising solution but still require huge enhancement to provide effective service. The major shortcomings of existing solution are security, scalability and lack of resources which leads to less availability of resources. Wireless sensor network is used to monitor to patient health status and transmit real time monitoring report on the storage server which is used by healthcare professional to provide better and fast response so it needs fast and secure transmission and retrieval of the information. In the medical field providing response on different emergency situation is also very important concern so an effective emergency management scheme is required for handling various kinds of emergency situations. In this paper we are providing a framework which provides effective data management as well provide functionality of disease prediction and cure suggestion in the absence of expertise with the help of hadoop implementation of genetic algorithm for the data classification. In this paper we also use DABE (Distributed Attribute based encryption) for flexible and fine grained access control for fast and secure data retrieval.

Keywords: WSN, hadoop, healthcare, cloud computing, data management, access control, Genetic algorithm.

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4.

Authors: **Amol Khot, N. K. Nath, Shailesh Pimple**

Paper Title: **To Control and Optimize the Response of Critical Components of Mandrel**

Abstract: Mandrel is the critical part of the rolling mill operation. Mandrel consists of several components which sometimes encounter unfortunate failures. These components include wedge, mandrel shaft, pull rod or segments. In this thesis design and optimization of wedge and mandrel shaft is carried out. To design the wedge there is need to calculate which the governing parameter while designing of wedge is the 3D modeling and simulation of the wedge is carried out using solid works software. The study also includes the optimization of the shaft. As the mandrel shaft was failed during working so there is need to optimize that shaft. The cause of failure of mandrel shaft was due to fatigue failure. So first of all fatigue failure analysis of shaft is done. For fatigue failure analysis the S-N curve has been created by considering various endurance limit and endurance limit correcting factors. Further study shows that the shaft was susceptible to the fatigue so it needs optimization. By considering various values of the fillet radius optimization is carried out. The shaft is then modeled and simulated in the Ansys v 12.

Keywords: Ansys, Components, Mandrel, Optimization

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5.

Authors:	**S.S. Saravanan, P. Jagadeesh**
Paper Title:	**Experimental Investigationon Strength Properties of M50 Grade Concrete With Replacement of Fine Aggregate by M-Sand–A Comparative Study With and Without using Admixture**

Abstract: In India, the conventional concrete is produced by mixing the cement, coarse aggregates and fine aggregates (river sand). In recent years, river sand has become a scarce material due to depletion of natural sources and creating environmental problem of water table depletion. it is essential toidentify an alternative material for fine aggregates (river sand). Mostcommonly indevelopmentof road sector such as theconstruction of high level bridges, elevated corridors and flyovers etc., the M50 Grade concrete is used extensively. Hence experimental investigationis carried out in respect ofworkability, strength and durability properties ofM50 concrete using manufacturedsand as fine aggregates and compared with the conventional concrete values. Using manufactured sand at 70% replacement of fine aggreagate, the compressive strength, split tensile strength and flexural strengthvalues increased by 12.09%, 12.50% and 16.67% respectively with super plasticizer compared to conventional concrete at 28days and 10.50%,11.36% and 11.20% respectivelywithout superplasticizer.Hence M50 concrete with manufacturedsand is found to be suitablefor concrete compared to conventional concrete with natural river sand.The use of manufactured sand is recommended with proper care in production of M50 Grade concrete by satisfying the requirement of gradation.

Keywords: compressive strength, split tensile strength, flexural strength, workability of concrete,super plasticizer.

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6.

Authors:	**Pradeep Kumar, Sachin Agrawal, Pammi Kumari**
Paper Title:	**Ergonomics Risk Factors in Construction Sector**

Abstract: Construction industry is one of the highly risky industries with more number of accident and injuries. Many construction companies have difficulty in providing a safe working environment for their employees. The purpose of this research is to identify the ergonomics risk factors on the construction site. This was done by site visit and asking questionnaire from the employees of the construction industry. This study will include ergonomics risk factors in relation of human and their nature of work. One of the most significant ergonomics risk factors are awkward posture in handling of job task, repetition and force of specific movement including vibration. Other ergonomics risk factor includes static position, contact stress of tendon and muscles and also extreme temperature condition. The study will enhance the awareness of the ergonomics risk factors which may occur in the construction sector.

Keywords: Construction, Ergonomics, Risk Factors

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7.

Authors: **Yanko Aleksandrov**

Paper Title: **Refrigeration Chambers and Volumes for Use in Extreme Situations**

Abstract: Here are reviewed new solutions for chambers and volumes to be used in extreme situations. Furthermore, the main aspects of the basic requirements for their implementation are taken into consideration. Three typical solutions with inventive step of the author are reviewed.

Keywords: types, new chambers and volumes, extreme situations.

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8.

Authors: **Sourav Sarkar, J. Shah, R. K. Kotnala, M. C. Bhatnagar**

Paper Title: **An Extensive Study of Structural, Dielectric, Magnetic and Optical Properties of Multiferroic $CoFe_2O_4$-$BaTiO_3$ and $CoFe_{1.7}Mn_{0.3}O_4$-$BaTiO_3$ Core-Shell Type Composites**

Abstract: Multiferroic CoFe2O4 -BaTiO3 and CoFe1.7Mn0.3O4 - BaTiO3 core-shell type composites (CFO-BTO and CFMO-BTO) were synthesized by conventional wet chemical method which combined two processes: co–precipitation method and sol–gel technique. X-ray diffraction (XRD) analysis confirms presence of both phases and average crystallite sizes for them were calculated to be in the range 15 – 30 nm. HRTEM micrographs ensure proposed core-shell like structure and verify estimated particle size from XRD data. No impurity other than the constituent elements has been found in the EDX spectra of individual phases as well as composites. SEM images of the powder form suggest presence of two different phases in the composites while images of the pellet forms show particle formation of both phases with dense microstructure. Variation of dielectric parameters with temperature at different frequencies yielded expected results with some interesting response around magnetic Curie temperature (Tc) for CFMO-BTO composite. Magnetic hysteresis loops were plotted for all these samples by applying a dc magnetic field in the range -5000 Oe to +5000 Oe. They show expected ferromagnetic behavior. Photoluminescence (PL) data was acquired using a laser excitation source of 266 nm. Emission peaks corresponding to individual phases (CFO, CFMO and BTO) as well as the composites were recorded and studied for the first time in core–shell composites.

Keywords: Composites, Dielectric properties, Optical properties, Sol-gel processes

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