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Modular Instruction with Experiential Mode as a Strategy for Training Technician Educators in Research Skills

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Abstract

Continuing education and training of technician educators is extremely important in the wake of rapid changes taking place in technology, industrial practices, instructional technology, the knowledge domain, student intake and constraints on available resources. Alternate strategies have been used to train technician educators through organization of short courses, in-house training, distance learning etc. The author was involved in using modular instruction with experiential mode as a strategy for training technician educators in the Colombo Plan region which comprised of 21 South Asian countries. This strategy has proved to be very effective in training in-service technician educators, as is evident from the case study of the above project reported in this paper.

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Seismic Evaluation of Reinforced Concrete Flanged Shear Walls

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Abstract

Reinforced concrete flanged shear walls are generally recognized as efficient lateral force resisting systems for multi-story buildings, due their ability to control drift demand under service load conditions as well as their inherent ductility capacity under seismic condition. Past studied indicate the effect on the behavior of shear walls due to stiffness of shear walls, location of shear walls, shape of shear walls etc. In the present study and effort to the behavior of the RC flanged shear walls to resist the lateral load is being proposed. The analysis is carried out using ETABS 2015 and the Indian Standards (IS) code.

Keywords: *Flanged Shear Walls, ETABS 2015, RCC Shear Walls, Seismic Evaluation.*

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Estimating Solid Waste Generation of Patiala City using ANFIS

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Abstract:

Rapid urbanization, industry growth and economic development have made municipal solid waste management more complicated in developing countries. A number of studies have been done in recent times using various methods for waste disposal and processing but no one method in isolation can tackle the waste management problem due to lack of accurate estimate of generated solid waste. Specific and appropriate data are mostly not available for solid waste estimation. Generally, data from census is also not available on individual level due to the data security and data protection issues. Inadequacy of data availability makes it difficult to decide upon the methodology to be used for making any kind of estimation or prediction. The house hold characteristics, level of income of individual, the facilities provided by the government, waste composition and other native conditions are the major parameters for estimating municipal solid waste generation rates. An attempt has been made in this paper to estimate the waste generation of Patiala city of Punjab, India, using ANFIS (adaptive neuro-fuzzy inference system) modelling. The study has been carried out by taking personal interviews and survey of the city residents using a structured questionnaire. Family size, education, income, awareness, facility availability, satisfaction level and waste generation are the parameters used in the analysis. Initially the number of inputs has been optimized using different combinations in ANFIS. The performance of the ANFIS model was evaluated through the RMSE (root mean square error), and R^2 (Coefficient of determination)

using optimized input combination. The household waste generation on the basis of data collected and native conditions of the study area has been estimated as 0.41 Kg/Capita /day with RMSE=0.084, and R^2=0.82 using ANFIS model in MATLAB version 7.8.0(R2009a). Model Results revealed that adaptive neuro-fuzzy inference system is a promising tool with wide scope of potential applications and it can be used to estimate and predict the waste generation capacity with great accuracy.

Keywords: Solid Waste Generation, Socioeconomic factors, Fuzzy Logic, Adaptive Neuro-Fuzzy Inference System (ANFIS), Solid Waste management (SWM).

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Investigation on Varied Configuration of Diagrid Structural Systems

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Abstract

The high rise buildings are designed considering the effect of lateral loads such as wind and earthquake on the building. These lateral loads are resisted by implementing interior and exterior structural systems. Diagrid structures are latest advancement among these lateral load resistance systems. An effort to investigate the effect of varied configuration on the diagrid structural system is made considering its performance in terms of displacement, shear, stiffness and interstorey drift. The configuration of the diagrid structural system was varied as the diagrid angle, module height and corner vertical columns. Further, the implementation of secondary bracings in the diagrid structural system at the core is also studied and its effects on the behavior and economy are presented.

Keywords: Diagrid Systems, Secondary bracing System, stability, design criteria, diagrid angle.

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Comparative Study of Mechanical Properties of Porous Concrete by using Normal Aggregates and Recycled Aggregates

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Abstract

The aim of this research work is to study the influence of recycled coarse aggregates instead of normal aggregates on the mechanical properties of porous concrete. Now-a-days, production of waste concrete is continuously increasing due to demolishing of old concrete structures and wastage of casting yards. Instead of dumping this concrete into landfills it can be recycled and used as aggregates known as **recycled concrete aggregates**. Due to scarcity and increasing prices of good quality fresh aggregates, recycled concrete aggregates can be used in porous concrete as they are very economical and easily available. **Porous concrete** is a special type of concrete having a large amount of percentage air voids due to which it allows water to pass through it. Porous concrete can also be called as **no fine concrete** as it has little or no fine aggregates. But at 0% fines, strength of porous concrete in very less, so in the present research, varying amount of fines were added in porous concrete to attain sufficient strength so that it can be used commercially. In this work, cubes and cylinders were casted by adding 0%, 5%, 10% and 15% sand by weight of total aggregates with both normal and recycled concrete aggregates. Prepared concrete was then tested for unit weight, porosity compressive strength and split-tensile strength at the age of 7days and 28 days.

Keywords: *recycled concrete aggregates (RCA); normal aggregates (NA); recycled aggregate concrete(RAC); normal aggregate concrete (NAC); porous concrete; unit weight; compressive strength; split tensile strength; porosity*.

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Transparent Concrete: Present Trend and Future Scope

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Abstract

Concrete is said to be one of the most widely used construction material in the world. This has been used since Roman times for the development of infrastructure and housing, but its basic components have remained the same. Concrete with less cost and improved performance is very important for rapid infrastructural development especially in developing countries. In this modern era, different types of concretes are continuosly evolving. Concrete has made considerable progress, not only in technical terms, but also in aesthetic terms. It is no longer the heavy, cold and grey material of the past; it has become beautiful and lively. Transparent concrete or light transmitting concrete is one such innovation which is attracting the attention of engineers' and architects' fraternity. It is a novel and smart building material which is manufactured by arranging the optical fibres into the concrete.This concrete has good transparency, mechanical and self-sensing properties. This new generation concrete is slowly finding its way into the modern architecture. Presently this concrete is quite costly as compared to normal concrete. However, with the improvement in technology and requirement scale, cost is likely to reduce in the coming future. Present paper discusses the present trend and fure scope of transparent concrete.

Keywords: Infrastructure, Performance, Aesthetic, Smart, Architecture, Optical fibres.

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Sustainable Skill Development in India: Strategies and Initiatives

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Abstract

Technically sound human resources are very crucial for achieving higher economic prosperity. Countries all over the world are making tremendous technological advancements over the recent years. Unfortunately, many of us, have been blinded by these progressions and are in a state of delusion on crucial issues like scarcity of natural resources, population explosion, poverty and unemployment. The main challenge faced by any government is to develop scientific and technical capabilities. To date, very little focus has been given to the circumstances in which the process of enhancing key competencies for sustainable skill development may take place. In this direction, many strategic points must be implemented at different levels of the society. This paper discusses the current scenarios of skill level in the world, with special reference to India and also points out certain initiatives that can be taken for sustainable skill development.

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Fog impact on Road Crash: A case study of Mohali District

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ABSTRACT

This paper presents a realistic study conducted to determine the fog impact on road crashes. The study involves statistics depicting the significance of fog on road crashes. Simultaneously, different graphical trends show the comparison between the urban and rural areas. Correlation Coefficients have also been examined out for the same. Fog impact on rural area is more significant and approximately twice the value of urban. The results presented in this paper clearly show the inverse relationship between visibility and the number of road crashes, as expected in general. This paper also highlights the percentage of fog and accidents, number of fatalities, visibility effect in both urban and rural areas.

Key Words: *Fog, Visibility, Road crashes, Fatal, Non-Fatal, Minor, Urban, Rural.*

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Analysis of Investor Diversification in Portfolio Building: An Empirical Study

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Abstract

The present study is a descriptive research based on research design and aim to analyze the investor diversification in portfolio building. The study employs high square analysis to examine the building of portfolio by investor's diversification. Many people consider investing to be a bewildered by the profusion and proliferation of investment alternatives, rattled by the fluctuations in financial prices, overwhelmed by the presence of mighty institutional investors, confused by exotic instruments and complicated investment strategies. Notwithstanding these concerns, investing can be fairly manageable, rewarding, and enjoyable experience, if we adhere to certain principles and guidelines and expect and hope to maximize our returns by diversifying our investments into suitable portfolios. So, each and every investor has to be well educated about the various investment options, market conditions and its consequences in future. The main objective of the study was undertaken to select the suitable investment criteria for want of better returns, risk factors and liquidity. The findings of the study highlighted the various considerations which help in building a constructive portfolio by taking into account the various factors like tax structure, govt. policy as well as rate of return.

Keywords: Portfolio Building, Investment alternatives, Rate of return, Risk.

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Experimental Studies of Properties of Concrete using Bagasse Ash

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Abstract

There has been a lot of emphasis on sustainable development over the years with greater focus on reduction of environmental hazards and effective utilization of wastes. The manufacturing industry too has been affected by it. Researchers have been trying to find suitable replacement of cement in concrete so as to mitigate the environmental degradation caused by the cement manufacturing units which is primarily due to carbon dioxide emissions. Numerous industrial and agricultural wastes have been brought up to be effective eco- friendly binders. Sugarcane bagasse is one such fibrous industrial waste which is produced in substantial quantities in India and is obtained as a result of combustion of sugarcane bagasse in the boilers at very high temperatures. The ash obtained from the process has large amounts of amorphous silica and thus can be effectively substituted as an admixture in concrete. In this study, sugarcane bagasse ash was used in M20gradeofconcrete by substituting cement 5%, 10%, 15% & 20%by weight. The heterogeneous mix of concrete is then tested for durability and compressive strength after subsequent time period of 7days, 28days, 35 days and 56 days. The result obtained showed significant improvement on mechanical and durability properties.

Keywords—*Bagasse ash [SCBA], Concrete, Sugarcane bagasse [SCB], Durability, Compressive strength, Material.*

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